SD-25161-01

SHEET INDEX (INITIATED ON ISSUE 36)

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FS 46 TROUBLE PRINTING AND AUTOMATIC RETEST CONTROL	B33	60	60	60	63	63	65	66	66	66	66															
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	B43					63	64	64	67	67	69															
	B44					64	65	66	67	68	69															
	B45							66	66	68	69															

A SHEETS WITH SUFFIX A WERE FORMERLY WITHOUT A SUFFIX LETTER.

SHEET INDEX NOTES

1. WHEN CHANGES ARE MADE IN THIS DRAWING, ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
2. THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.
3. THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
5. THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.
6. ON ISSUE 36, THIS DRAWING WAS CHANGED FROM THE ATTACHED TO THE DETACHED CONTACT ARRANGEMENT INCREASING THE NUMBER OF SHEETS FROM 25 TO 96.
7. TO ASSOCIATE CADS WITH SWITCHBOARD CABLE DETAILS DRAWINGS, IT IS NECESSARY TO ADD 50 TO THE CAD NUMBER WHICH CORRESPONDS TO THE (EQUIVALENT) CROSS CONNECTION FIGURE NUMBER OF THE OLD ATTACHED FORM.

SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DRAWINGS	J27753B-( ) J27753C-( ) J27753D-( ) J27753E-( ) J27753F-( ) J27753G-( ) J27753H-( ) J27753K-( ) J27753L-( ) J27753M-( ) J27753N-( ) J27753P-( ) J27753R-( ) J27753S-( ) J27753T-( ) J27753
EQUIPMENT DESIGN REQUIREMENTS	(817-601-150) (817-701-150)
DESCRIPTION AND OPERATION	(216-277-501) (216-720-101) (220-160-501) (220-460-101) (220-461-101)
CROSS CONNECTIONS	(216-720-301) (220-461-301) (216-780-000)
TESTS AND ADJUSTMENTS	(216-784-501) (220-461-501) (220-461-502) (220-462-000)

DMG ISSUE	CE OR CD ISSUED	DMG ISSUE	DATE ISSUED	DMG ISSUE	CD ISSUE
1	1	2A	2A	3D	2A APP 1D
4B	2A APP 2D	5AR	2A APP 3AR	6D	2A APP 4D
7AR	3AR	8D	3AR APP 1D	9D	4D
10D	4D APP 1D	11C	4D APP 2D	12D	4D APP 3D
13D	5D	14D	5D APP 1D	15D	5D APP 2D
16D	5D APP 3D	17D	6D	18D	7D
19D	7D APP 1D	20D	8D	21B	8D APP 1B
22B	9B	23B	9B	24D	10D
25D	10D APP 1D	26B	10D APP 2B	27D	10D APP 3D
28B	11B	29D	11B APP 1D	30B	12B
31AR	12B APP 1AR	32AR	12B APP 2AR	33B	13B
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37D	13B APP 4D	38AR	13B APP 5AR	39AR	13B APP 6AR
40D	13B APP 7D	41D	14D	42B	14D APP 1B
43AC	14D APP 2AC	44AR	14D APP 3AR	45D	14D APP 4D
46AC	14D APP 5AC	47D	15D	48A	15D APP 1A
49D	15D APP 2D	50A	15D APP 3A	51A	15D APP 4A
52D	15D APP 5D	53D	15D APP 6D	54AR	15D APP 7AR
55D	16D	56A	15D APP 1A	57A	16D APP 2A
58D	17D	59AC	17D APP 2AC		

DMG ISSUE	CD ISSUE	DATE ISSUED	Note	APP'D
60D	18D	3-31-71	NSC N/C	CAO TAL TAJ
61D	18D APP 1D	3-31-71	NSC N/C	CAO TAL TAJ
62A	19A	12-2-74	JGS 96P	ACC TAL TAJ
63B	19A APP 1B	12-18-74	DR KMI	ACC TAL TAJ
64B	19A APP 2B	9-3-75	CDI LB	ACC TAL TBS
65A	19A APP 3A	9-3-75	CDI LB	ACC TAL TBS
66B	19A APP 4B	9-3-75	CDI LB	ACC TAL TBS
67B	19A APP 5B	9-3-75	CDI LB	ACC TAL TAJ
68B	20B	1-17-76	CDI CDI	ACC TAL RCA
69AC	20B APP 1AC	1-17-76	CDI CDI	ACC TAL RCA

NOTICE- NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT.

ISSUE 69AC

IC99

CROSSBAR SYSTEMS

NO. 1 OR TANDEM OFFICE AUTOMATIC TEST CIRCUIT

FOR INCOMING TRUNK CIRCUITS

AT&TCO STANDARD

(2) (CONN CONT)

SD-25161-01-AI

168 SHEETS

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-AI

SHEET INDEX

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APP FIG 3	C2	58	61	62	63	63	65	66	66	68	68															
	C3	37	61	62	63	63	66	66	66	68	68															
APP FIG 4	C4	52	61	62	63	63	63	63	63	68	68															
APP FIG 5	C5	57	61	62	63	63	63	63	63	68	68															
	C6	52	61	62	63	63	63	63	63	68	68															
	C7	60	61	62	63	63	65	65	65	68	69															
APP FIG 6	C8	58	58	58	63	63	63	63	63	68	68															
APP FIG 7,8,9	C9	58	61	62	63	63	63	63	63	68	68															
APP FIG 10,11,12	C10	60	61	62	63	63	63	66	66	68	68															
APP FIG 13,14	C11	58	61	62	63	63	65	66	66	68	68															
APP FIG 15,16	C12	58	58	58	63	63	63	63	63	68	68															
APP FIG 17	C13	60	60	60	63	63	65	65	65	68	68															
APP FIG 18	C14	58	58	58	63	63	65	65	65	65	65															
APP FIG 19																										
APP FIG 20,21	C15	58	58	58	63	63	63	63	63	63	63															
APP FIG 22-25	C16	58	61	62	63	63	63	66	66	68	68															
APP FIG 26,27,28	C17	60	61	62	63	63	63	63	63	68	68															
APP FIG 29,30,31	C18	56	61	62	63	63	63	66	66	68	68															
APP FIG 32	C19	60	61	62	63	63	63	66	66	68	68															
APP FIG 33	C20	58	61	62	63	63	63	66	66	68	68															
APP FIG 34-38	C21	60	60	62	63	63	65	65	65	68	68															
APP FIG 39,40,41	C22	46	46	46	63	63	65	65	65	68	68															
APP FIG 42-45	C23	59	59	62	63	63	65	65	65	68	68															
APP FIG A-D	C24	45	61	62	62	62	62	66	66	68	68															
APP FIG E-H,J-N,P	C25	52	61	62	63	63	63	63	63	68	68															
APP FIG 46-51	C26	57	61	62	63	63	65	65	67	67	67															
APP FIG 52,53,54	C27	60	61	62	63	63	63	63	63	68	68															
APP FIG 55,56	C28	60	61	62	63	63	65	65	65	65	65															
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APP FIG 60	C30	60	61	62	63	63	63	63	63	63	63															
APP FIG 61,62	C31	60	60	60	63	63	63	63	67	68	68															
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APP FIG 65,66,67,68	C33				63	63	63	63	63	68	68															
APP FIG 69,70	C34				63	63	63	63	63	68	68															
APP FIG. 72	C35					64	65	66	67	68	69															
APP FIG. 73	C36					64	65	66	67	67	67															
APP FIG. 74,75,76	C37					64	65	66	67	68	68															
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EQUIPMENT NOTES 201,202 (CROSS CONNECTING INFORMATION)	D2	60	60	60	63	63	63	63	67	68	68															
EQUIPMENT NOTE 203 (CROSS CONNECTING INFORMATION)	D3A	60	61	62	63	63	63	63	63	68	68															
EQUIPMENT NOTE 204 (CROSS CONNECTING INFORMATION)	D3B	60	60	60	60	64	65	66	66	68	68															
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** SHEETS FORMERLY HAD A SUFFIX A

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RMI COMPOSITE SEQUENCE CHART	E1	53	53	53	53	53	53	53	53	53	53															
SC 1 START	E2A	58	61	62	63	63	65	65	65	65	65															
SC 2 CONTINUITY REVERSAL TEST (RP) SC 3 BUSY TIMING SC 4 TROUBLE TIMING FOR REGULAR NO TROUBLE TEST SHOULD COMPLETE BEFORE BK OPERATES	E2B		61	62	62	62	65	65	65	65	65															
SC 5 ADVANCE H SELECTOR AFTER COMPLETION OF TEST SC 6 ADVANCE S SELECTOR AFTER 20TH TRUNK HAS BEEN TESTED	E3Ax	58	60	62	63	63	65	65	65	65	65															
SC 7 ADVANCE G OR GA SELECTORS AFTER ALL TRUNK CIRCUITS ON CROSSBAR SWITCH HAVE BEEN TESTED	E3B						65	65	65	65	65															
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SC 8 CONTROL ADVANCE SC 9 REPEAT TEST SC 10 BRUSH CONTINUITY RECYCLE SC 11 CONCLUSION OF ROUTINE TEST SC 12 RESTORE TO NORMAL MANUALLY	E4	58	61	62	63	63	65	65	65	65	65															
SC 13 REVERTIVE PULSING SELECTIONS	E5	60	60	62	62	62	65	65	65	65	65															
	E6	60	60	60	60	60	60	60	60	60	60															
SC 14 TESTING USING SYNCHRONIZED OR NON SYNCHRONIZED TEST LINE (RP, DP & MF)	E7A	60	60	62	63	63	65	65	65	65	65															
SC 15 RAPID TEST TO A BUSY LINE SC 16 BRUSH CONTINUITY TEST	E7B	60	60	62	62	62	65	65	65	65	65															
SC 17 AUTOMATIC PASS BUSY SC 18 REPEAT 2 TO CHECK RELEASE OF INCOMING (A) RELAY	E8	60	61	62	62	62	65	65	65	65	65															
SC 19 MF PULSING - WINK START-THREE DIGIT PULSING - SIMPLEX RERING SYNCHRONOUS TEST LINE WINK START	E9	58	61	62	62	62	65	65	65	65	65															
SC 20 NON-SYNCHRONIZED TEST LINE MF & DP SC 21 RAPID TEST TO A BUSY LINE (4 OR 5 DIGITS ONLY) (NON-SYNCHRONIZED TEST ARRANGEMENT) SC 22 TWO WAY MF TRUNK DELAY DIAL CTT KEY NORMAL SC 23 DELAY DIAL START PULSING SC 24 TWO WAY MF TRUNK DELAY DIAL CTT KEY OPERATED	E10	60	61	62	63	63	65	65	65	65	65															
SC 25 GO START - START PULSING	E11	58	61	62	62	62	65	65	65	65	65															
SC 26 RING FORWARD SUPERVISORY TEST LINE TEST MF & DP	E12	57	61	62	62	62	65	65	65	65	65															
SC 27 REPEAT TEST (WITH YY OPTION) SC 28 REPEAT 2 MF OR DP (WITH YY OPTION) (MF SHOWN) SC 29 REPEAT TEST (WITH YX OPTION)	E13	60	61	62	63	63	65	65	65	65	65															
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SC 31 TEST CKT ENCOUNTERS BUSY TRUNK WITH TTY IN USE (TM2-TM4 KEY NORMAL) SC 32 PRINTING TROUBLE CONDITIONS SC 33 CONTINUITY AND POLARITY TEST OF E AND M TRUNKS	E15	58	58	58	63	63	65	65	65	65	65															
SC 34 TRANSMISSION TESTING	E16	58	61	62	63	63	65	65	65	65	65															
SC 35 TESTING TIMING RELEASE OF 2 WAY TRUNKS SC 36 STRAIGHT FORWARD CALL SC 37 XMSN TESTING, REV OP	E17	60	61	62	62	62	65	65	65	65	65															

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DRAWING ISSUE
60D
61D

ISSUE
69AC

AUTOMATIC TEST CIRCUIT ②

SD-25161-01-A2

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-A2

CBL-142 (10-69)

SHEET INDEX

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SC 38 TIMING FOR HIGH AND DRY NOISE AND TONE DETECTION SC 39 TRUNK IDENTIFIER TEST	E18	60	61	62	62	62	65	65	65	65	65															
SC 40 RING FORWARD SUPERVISORY TEST LINE TEST HOME OFFICE STRAIGHT FORWARD SC 41 TEST HOME OFFICE SYNCHRONOUS TEST LINE SC 42 CONTINUITY AND AUDIBLE TEST OF 30,60,120 IPM AND ANNOUNCEMENT TRUNKS	E19	60	61	62	63	63	65	65	65	65	65															
SC 43 CENTREX TEST LINE SC 44 PRINTING BUSY AND TROUBLE TICKETS USING RECORDER CIRCUIT AND TICKETER SC 45 PASS TEST	E20	60	61	62	62	62	65	65	65	65	65															
SC 46 ONE-WAY TRANSMISSION TEST SC 47 ONE-WAY TRANSMISSION TESTING TROUBLE CONDITIONS SC 48 PASSING A ONE-WAY TRANSMISSION TEST TRUNK DURING TWO-WAY TRANSMISSION TESTS	E21	58	61	62	63	63	65	65	65	65	65															
SC 49 TEST TO A SYNCRONOUS TEST LINE IN A CROSSBAR TANDEM OFFICE REVERTIVE PULSING ONLY. SC 50 RESTORE TO NORMAL AUTOMATICALLY	E22	58	61	61	61	61	61	61	61	61	61															
	E23		61	61	63	63	65	65	65	65	65															
SC 51 PCI OUTPULSING	E24		61	61	63	63	63	63	63	63	63															
SC 52 MF ANI TESTING	E25		61	61	63	63	65	65	65	65	65															
SC 53 MOH ACCESS	E26						65	65	65	68	68															
SC 54 CONNECTOR BUSY TIMING	E27							66	66	66	66															
SC 55 CONNECTOR USE FOR STUCK SENDER TRUNK IDENTIFICATION	E28							66	66	66	66															
CKT REQT TABLE, MAGNET G TO TST, RELAYS O- ADM	F1AX	58	61	62	63	64	64	64	67	68	68															
CKT REQT TABLE, RELAYS ALI TO BK	F1B									68	68															
CKT REQT TABLE, RELAYS BLI TO FFT	F2	60	61	62	63	64	65	65	67	68	68															
CKT REQT TABLE, RELAYS FO' TO IC	F3A	57	61	62	63	64	64	64	64	68	68															
CKT REQT TABLE, RELAYS IDS TO OF	F3B		61	62	63	64	64	64	64	64	64															
CKT REQT TABLE, RELAYS OF1 TO RP2	F4	58	61	62	63	63	65	65	67	68	68															
CKT REQT TABLE, RELAYS RP2 TO SV1	F5	60	61	62	63	64	64	66	66	68	68															
CKT REQT TABLE, RELAYS SW TO TU	F6	60	60	60	63	64	64	64	64	68	68															
CKT REQT TABLE, RELAYS TY1 TO Z0 PULSING REQT TABLE, RELAYS CKP TO PLS	F7	60	61	62	63	63	63	63	63	63	63															
TIMING REQT TABLE	F8	59	59	59	59	59	59	59	59	68	69															

XSHEETS WITH SUFFIX LETTER A WERE FORMERLY WITHOUT A SUFFIX LETTER.

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CAD 8,9,10	G2A	58	61	62	63	64	64	66	66	66	69															
CAD 11	G2R		61	62	63	64	65	66	66	68	69															
CAD 13,14	G3A*	58	61	62	63	63	63	66	66	68	68															
	G3B									68	68															
CAD 15	G4	58	61	62	63	63	63	63	67	67	67															
CAD 17,18,19	G5	60	60	60	63	63	63	63	63	63	63															
CAD 12,16	G6	60	60	62	63	63	65	65	65	68	68															
CAD 20,21	G7	58	61	62	63	63	63	63	63	63	63															
CAD 22,23,24,25	G8	58	61	62	63	64	64	66	66	66	69															
CAD 26	G9					64	64	64	64	64	69															
CAD 27,28,29	G10																									
SHEET CANCELED ON DWG ISS 62	G11																									
CAD 36,37	G12				63	63	63	66	66	66	66															
CAD 38,38A,39	G13				63	63	63	63	63	68	68															
CAD 40	G14				63	63	63	63	63	63	63															
CAD 41,42,43	G15				63	63	63	63	63	63	63															
CAD 44	G16					64	65	66	67	67	69															
CAD 45,46,47	G17					64	65	65	67	68	68															
CAD 48,49	G18							66	66	68	69															
CAD 50	G19					64	64	66	67	67	67															

8

DRAWING ISSUE
60D
61D

ISSUE 69AC

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-A3

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

SD-25161-01-A3

CBL-142 (10-69)

APPARATUS INDEX

DESIG	LOCATION FS	APP FIG	EQPT
RELAYS			
0	15C7	5	AH
1	15C7	5	AH
1-2	39A8	63	
2	15C6	5	AH
2DG	41A/G3	78	
2W	34G3	29	C
2WR	1D3	28	C,AC
2WS	34H3	30	C
3	15C5	5	AH
4	15C5	5	AH
4DG	26H1	13	
5	15C4	5	AH
5DG	26A2	13	
6	15C3	5	AH
6DG	41A/H1	13	
7	15C3	5	AH
7DG	41B6	13	
8	15C2	5	AH
9	15C1	5	AH
1'	15C7	5	AJ
2'	15C6	5	AJ
3'	15C6	5	AJ
4'	15C5	5	AJ
5'	15C4	5	AJ
6'	15C4	5	AJ
7'	15C3	5	AJ
8'	15C2	5	AJ
9'	15C2	5	AJ
10'	34B7	47	
A	19E1	5	AD
A1	18C9	5	AD
A2	15C2	5	AD
A3	18D8	5	AD
A4	15H0	5	AD
AA	19A1	42	
ABC-	41B2	67	
AC(1-3)	34C5	66	
ADG	26E5	13	
ADM-	10A9	68	
ALI	32F2	32	B
ALM	33A2	32	C
AMB	36D4	42	
AN	19D1	5	AE
ANI	18G6	5	AE
ANIC	34D5	62,66	
ANIT	27C0	66	
AR	36G5	42	
AST	1A8	56	
ASTA	1A8	56	
ASTF	1A6	56	
AV	19G6	12	K
AV1	22D1	6	AL
AV2	22B5	6	AL
BBD	44H4	73	
BC	17E7	5	AF
BCI	17E8	5	AF
BCB	42H1	73	
BCK	43A9	73	
BCR	6A8	K	AN
BCT	42G6	73	
BCT1	42D6	73	
BCX--	44G0	74	
BCY--	43B0	74	
BD	45D2	73	
BDG	26D5	13	
BDRL	45G8	72	
BGD	34E5	19	D
BH--	45H3	73	
BK	7H6,H7	3	AM
BL	17D7	5	AF
BL1	17D7	5	AF
BL2	17D6	13	J
BL4	34D2	23	M
BO'	15C8	5	AJ
BPL	45E2	73	
BSL	42B6	73	
BTG	6C1	41	AB
BVN	43G0	73	
BY	7A3	3	AM
BY1	7B5	3	AN
C	17A8	5	AF
C1	17E1	5	AF
C2	17B8	5	AF
C2A	17B8	5	AC
C3	17B7	13	J
C4	17C8	13	J
C5	17D8	13	M
CA	1B8	3	AM
CA1	1G5	3	AM
CA2	1F5	3	AM
CA3	1E6	3	AM
CA4	6H6	J	AM
CA4	6G6	K	AM
CA5	1D6	12	K
CBY	42E6	72	
CCK	45A5	73	
CDG	26D5	13	
CIA-	3C8	2	CONN UNIT
CIB	3C8	2	CONN UNIT
CIC	3D8	2	CONN UNIT
CICT	40F2	70	
CID-	3E8	2	
CIG	40E1	63	
CIR	39F8	63	
CIT	39B8	63	
CIW	39H5	63	
CIZ	39H5	63	
CKP	28D5	18	G
CNX	22F4	48	
CNX1	22C8	48	
CNX2	22G8	48	
CO	40A1	63	
COD-	41A2	69	
CP	11F4	4	AP
CP	11D7	9	AP
CP1	11H2	4	
CP1	11H4	9	AQ
CP2	17A1	4	
CP2	17C3	9	AQ
CP3	17D3	9	AN
CPT	10C6	3	K,AJ
CRA	10G1	63	
CRB	10G1	63	
CRC	10H1	63	
CTT	35B1	28	
DID	37B3	46	
DC(0-9)	24A8,B8	15	H
DDE	41B/H3	78	
DDO	41B/H3	78	
DL	25F2	21	M
DL1	25E0	21	M
DM-	34B2	26	AQ-AW
DN-	34A8	53	
DP	34B8	18	D
DP1	34D3	18	D
DPC	34B7	18	D
DPL	34A5	14	H
DT1	31F4	41	AB
DT2	31G4	41	AB
DT3	31H2	41	AB
DTC	19D9	41	AB
DW	17E8	18	F
DZ	17F7	18	F
EAS	34G1	41	
EP	21C3	6	AL
EP1	21C4	6	AL
ESS	10F2	5	
EVN	43H0	73	
FB	38C8	78	
FD	19B0	5	AF
FD1	19B9	5	AF
FDC	1C9	41	AB
FIV	10A9	67	
FLR	23B1	42	
FO'	15C8	5	AJ
FS1	31B8	32	C
FS2	31C9	32	C
FSF	23C0	44	
FT	31C9	32	A
G-	10A7	4	
G-	10A7	11	AQ-AW
G-	10A7	52	
GA	2D4	B	AN
GB	2D2	B	AN
GOS	34B5	18	D
GR	3E8	3	AM
H	5F7	3	AM
H1	1C0	3	AM
HA	5G3	3	AL
HAD	31A5	34	M,AC
HFP	40B1	63	
HF1	20D3	71	
HFV	41A/A5	71	
HLD	42E6	72	
HMS	37A1	46	
HN	39G5	63	
HTR	36E0	44	
HU	26D8	13	J
IA	15F8	5	AE
IA1	19C1	5	AE
IA2	18F7	5	AE
IA3	15F6	5	AE
IB	38D8	78	
IBD	42B1	72	
IC	37C1	46	
ICB	42B1	72	
ICRL	45G8	72	
ICT	42A1	72	
IDS	37C3	46	
IDT	37E3	46	
IDT1	37D3	46	
IF	37D1	46	
IG	38E9	78	
ISL	42C6	72	
K	14C6	7	
KP	26B3	13	J
KP1	24B/B5	15	H
LC	25E8	18	F
LD	25F7	18	F
LE	25F8	18	F
LPD	34D5	18	F
LRD	34D5	19	D
M1	29G0	32	N
M1A	29H2	32	N
M2	29F4	32	N
M3	29F1	32	N
M4	29G3	32	N
M4A	29H3	32	N
MDP	34A0	12	K
MF	34A4	17	C
MF1	34C3	17	C
MFC	34B7	17	C
MO	14F2	5	AB
MO1	18F0	5	AF
MO2	18H0	5	AF
MO3	18H1	5	AF
MTG	14F4	5	AB
MV	30A4	32	B
NI1	26G9	66	
NI2	23C6	66	
NO	19D4	5	AF
NO1	14G8	5	AB
NS	36D5	42	
NSA	41A3	67	
NSC	41A6	67	
NSTC	34H5	67	
NTL	10D2	5	AE
OF	14E7	5	AB
OF1	15G8	5	AE
OI(0,1)	41C3	24	L
OI(2-9)	41B3	24	L
ON	13A1	19	D
ON1	26A7	32	N
ON2	26A7	32	N
OP	18F9	54	AB
OP1	18B0	54	AB
OP2	18C0	54	AB
OP2A	18A0	54	AB
OP3	19C0	54	AB
OP3A	19D0	54	AB
OST	10E4	64	
OSTA	10D4	64	
OWM,I	34G8	51	AW
P	28C5	16	G
P1	28C8	18	F
P2	28D6	18	F
P3	28E7	18	F
P4	28D6	18	F
P5	28F7	18	F
P6	28B6	18	F
PAS	31C5	35	K
PB	6A4	4	AQ
PB	6B4	9	AQ
PC	19G1	12	K
PC1	19G1	12	K
PC2	19G2	12	K
PC3	19G3	12	K
PC4	19F4	12	K
PCIC	34A6	70	
PD1	43C0	73	
PD2	43D0	73	
PD3	43E0	73	
PD4	43C9	73	
PD5	43D9	73	
PD6	43C9	73	
PEM	34F2	9	AN
PG	28B3	16	G
PGA	13C3	17	C
PGB	13B3	63	
PH	18D5	E	AL
PH	23H0	F	AL
PH	18C5	G	AL
PLS	13B3	19	D
PR	33F5	3	AL
PRP	31D4	34	M,AC
PRS	2D5	3	AC
PS	26F8	13	J
PSA	26E2	13	F
PT	10E7	3	AN
PTF	36A4	42	
PTF1	36B4	42	
Q4	39G5	63	
R1	33H1	33	M,AC
R2	33H2	33	M,AC
RAC	3A/C9	75	
RB	23C5	14	H
RBD	44F4	73	
RBT	6G1	25	AC
RCB	42E1	73	
RCK	43A9	73	
RCP	10C7	3	
RCT	42F6	73	
RCT1	42C6	73	
RCX--	44F0	74	
RCY--	43B0	74	
RD	45F2	73	
RF	23E4	21	M
RF1	25B2	21	M
RF2	25C1	21	M
RF3	25A2	21	M
RF4	25A2	21	M
RFC	25C1	21	M
RFT	31B1	32	B
RH--	45G3	73	
RI-	10B7	8	AC
RI-	10E3	27	AC
RN	5D8	3	AM
RN1	5H6	3	AN
RNA	5E6	56	
RO	23B4	14	J
RP	16G3	5	AD
RP1	20B8	5	AD
RP2	16E1	5	AD
RP3	16E2	5	AD
RP4	16F0	5	AD
RP5	16F1	5	AD
RP6	15F2	5	AD
RP7	16B3	5	AD
RP8	16B2	5	AD
RPA	17E1	78	
RPB	17F1	78	
RPC	38B8	78	
RPL	45E2	73	
RPX	15F4	5	AC
RPY	15F3	5	AC
RS	29F4	32	B
RSL	42A6	73	
S	3G3	3	AM
S1	19A5	5	AE
S2	19C9	5	AE
S3	18F3	5	AE
S4	19C3	5	AE
SAT	34H1	41	
SBT	37A3	46	
SDC	1E9	41	AB
SG	27A8	16	G
SGO	34D8	18	D
SD1	25C6	18	F
SD2	25C7	18	F
SK1	23A4	18	D
SK2	23A4	18	D
SKTH	26H5	13	J
SKTU	26H3	13	J
SO	21D2	6	AL
SO1	21D3	6	AL
SO2	21A2	6	AL
SO3	21A3	6	AL
SP	14E4	5	AB
SP1	15E1	5	AE
SP2	19D3	5	AE
SP2A	19E3	42	
SP3	18H3	5	AE
SP4	19G8	12	K
SP4A	19G8	42	
SP6	19F9	12	K
SP7	34D8	12	K
SRA	42D1	73	
SSK	31F1	34	L
SSS	44G6	73	
SST	26E8	13	
ST	1B0	3	AM
STC	24B/C0	15	H
STF	34A7	40	D
STF1	34A9	40	D
STL,A	10A2	54	AC
STOP	44G8	75	
STP	14F8	5	AH
STR	37C3	46	
STT	6C8	28	AC,C
STV	30H6	32	B
SU	12C2	14	G
SU1	23E4	14	H
SUL	23D6	29	C
SUR	12C2	14	G
SV	23H0	32	C
SV1	23G0	32	
SW	22C8	6	AL
SW1	22E4	6	AL
SY	21F5	6	AJ
SY1	22D8	6	AL
SYT	34B7	44	
T	26D8	13	J
TA	7B6	3	AL
TAT	29A8	32	N
TBL	7G2	3	AM
TBT	29G6	32	N
TBY	36C4	42	
TC	17E4	12	K
TCT	29B8	32	N
TCT1	29C8	32	N
TCV	19D1	35	AC
TD	6D4	4	
TD	6C6	9	AC
TD1	6B4	17	C
TD2	6B6	17	
TDS	36C5	44	
TDT	29C8	32	N
TDT1	29G9	32	N
TET	29D8	32	N
TF	10F2	5	AE
TFT	29F8	32	N
TG	40B4	63	
TG1	19B3	5	AF
TG2	14F5	5	AB
TGA	40D1	63	
TH	26E8	13	J
THC	40C1	63	
TI	6A5	4	
TI	6G5	9	AQ
TI1	6D6	4	
TI1	6D5	9	AQ
TL4	34C2	23	M
THA	45D8	72	
TMB	45D6	72	
TMC	7E3	42	
TMC	45F8	72	
TMD	45F6	72	
TN	36E5	42	
TN1	10A2	35	AC,AJ
TN2	10B2	35	AC,AJ
TN3	10C2	35	AC,AJ
TNA	36F5	42	
TNB	36G5	42	
TNC	36E5	42	
TP1	36A5	44	
TP2	36B5	44	
TR	6F7	3	AM
TR3	34C8	21	M,AC
TR3	34C7	39	M,AC
TR4A	34F5	35	M
TR4B	34G5	35	M
TR4C	34G5	35	M
TR5	34F7	35	M
TRA	29B0	35	K
TRA1	29D2	35	K
TRA2	29D4	35	K
TRN	29B0	35	AC
TRO	36C4	42	
TRS	37F2	46	
TSC	36G0	44	
TSU	36B1	44	
TT	29A4	32	B
TT1	29A0	32	B
TT2	29C0	32	D,AC
TT3	34C9	20	L
TTA	29D0	42	
TTM	35F7	43	
TU	26C8	13	J
TU1	26A6	13	
TY1	8B/C9	61	AC
TY2	8B/D0	61	AC
TYS	8B/A8	38	AC
U	26C8	13	J
V	31E5	32	C
VA	32A5	32	B
VB	32B7	32	B
VC	32E6	32	B
VCS	32F6	51	AW
VD	32D5	32	B
VE	32C7	32	B
VF	32D6	32	B
VNL	9C0	36	AL
VT	10D6	3	AM
W	16D2	5	AD
WC	4B6	31	J
WK	34B5	14	H
WN	36B8	42	
WP	17G8	18	F
XB	10F2	5	AF
Z	16D1	5	AD
ZC	4B7	31	J
ZO	18C7	5	AF

DRAWING ISSUE
60D
61D

ISSUE 68B

AUTOMATIC TEST CIRCUIT

(2) SD-25161-01-A5

BELL TELEPHONE LABORATORIES INCORPORATED

SHEET 6S

SD-25161-01-A5

CBL-176 (9-68)

APPARATUS INDEX

CAPACITORS

DESIG	LOCATION FS	APP FIG.	EQPT
A	2G7	3	AN
A	1G1	4	
A	18A3	5	AG
A	21E4	6	AK
A	1G0	9	AP
B	3A/C2	3	AN
B	18B1	5	AG
B	22B2	6	AK
BBO	44C5	73	
C	5D1	3	AN
C	18D1	5	AG
C	21C2	6	AK
CA1	35F2	28	B,AX
CA2	35F3	28	B,AX
D	7F0	3	AN
D	14E0	5	AG
D	21F3	6	AK
E	15A1	5	AG
E	2E0	8	AN
F	15B1	5	AG
FLT	30B3	32	A
FT	31D7	32	A,AH
G	19A5	5	AG
H	18B9	5	AG
ID1	35F5	46	
LPD	13D2	18	E
MF	28D2	17	E
MR	12D6	12	L
MT	12B7	12	L
PG	28C2	4	G
R	14F2	5	AB
RBO	44B5	73	
T	14E2	5	AB
T2	12C3	12	L
T3	12C2	12	L
TRC	14D1	5	
TTI	35B7	42	
V1	30C2	32	A
V2	30C1	32	A

COMPONENT ASSEMBLIES

DESIG	LOCATION FS	APP FIG.	EQPT
CA0	SEE APP FIG.	73	
CA0		77	
CA1		73	
CA1		77	
CA2		73	
CA2		77	
CA3		73	
CA3		77	
CA4		78	
CA5		78	

CORDS

DESIG	LOCATION FS	APP FIG.	EQPT
TC	12C7	25	

DIODES

DESIG	LOCATION FS	APP FIG.	EQPT
CA5	1E6	12	
CR1	8C/B1, B5, G1, G5	77	CA0-CA3
CR2	8C/B1, B5, G1, G5	77	CA0-CA3
CR3	8C/B2, B5, G2, G6	77	CA0-CA3
CR4	8C/B2, B6, G2, G6	77	CA0-CA3
CR5	8C/B2, B6, G3, G6	77	CA0-CA3
CR6	8C/B3, B7, C3, G7	77	CA0-CA3
CR7	8C/B3, B7, G3, G7	77	CA0-CA3
CR8	8C/B4, B7, G4, G7	77	CA0-CA3
DC(0-9)A,B	41B/BHI	78	CA4,CA5
SBT	37A3	46	
SUR	12D2	18	

DIODES, LIGHT EMITTING (SEE NOTE 141)

DESIG	LOCATION FS	APP FIG.	EQPT
ALM	7B8	3	
BPT	42H5	3	
CBY	42H4	3	
GROUP 0-9	2A7	3	
GROUP 10-19	2C7	3	
GROUP 20-39	2A3,B3	B	
HOLD 0-19	4E4,G1, H1	3	
ICR	42E9	3	
RPT	42H5	3	
SELECT 0-9	3A/F6, G3	3	
SST	42H5	3	

INDUCTORS

DESIG	LOCATION FS	APP FIG.	EQPT
FLT	30B0	32	A

JACKS

DESIG	LOCATION FS	APP FIG.	EQPT
ADJ	SEE APP FIG.	16	G
BTR	44C7	73	
CKP	SEE APP FIG.	18	G
IB0	16C8	5	JACK, KEY & LAMP PANEL
IB1	16B8	5	
IB2	16B8	5	
IB3	16A8	5	
IB4	16A8	5	
IG0	16E8	5	
IG1	16D8	5	
IG2	16D8	5	
IG3	16C8	5	
OB0-9	16D4	64	
OG0-9	16C4	64	
P	SEE APP FIG.	16	G
PG			
RTR	44A7	73	
SY	SEE APP FIG.	6	AJ
T	12C7	25	JACK, KEY & LAMP PANEL

KEYS

DESIG	LOCATION FS	APP FIG.	EQPT
AAR,AR	SEE APP FIG.	33	
ACO		3	
AOSS		3	
APB		3	
AST		56	
BC,BL		25	
BCR		K	
CA		3	
CFB		55	

KEYS

DESIG	LOCATION FS	APP FIG.	EQPT
CP	SEE APP FIG.	4	
CP		9	
CTT		29	
DR-1 1W		77	
DR-1 2W			
DR-1 A			
DR-1 B			
DR-1 C			
DR-1 D			
DR-1 E			
DR-1 F			
DR-1 G			
DR-1 H			
DR-2 1W			
DR-2 2W			
DR-2 A			
DR-2 B			
DR-2 C			
DR-2 D			
DR-2 E			
DR-2 F			
DR-2 G			
DR-2 H			
FBT		9	
G		3	
GR 1 PRT		60	
GR 2 PRT		60	
GR.A		38	
GR.B		38	
H		3	
IDT		49	
L	12C7	25	
MO	18C8	5	
OHM	10E8	51	
PTR	SEE APP FIG.	33	
REP		3	
REP2	16G2	N	
REP2		P	
REP2,REP2 SXS		M	
RN-ST	SEE APP FIG.	3	
S		3	

KEYS

DESIG	LOCATION FS	APP FIG.	EQPT
STR	SEE APP FIG.	50	
TA		3	
TRANS, TRANS & NOISE		32	
TST GR		38	
TST GR 1-4		60	
TTY-1 A		77	
TTY-1 B			
TTY-1 C			
TTY-1 D			
TTY-1 E			
TTY-1 F			
TTY-1 G			
TTY-1 GPS			
TTY-1 H			
TTY-2 A		77	
TTY-2 B			
TTY-2 C			
TTY-2 E			
TTY-2 F			
TTY-2 G			
TTY-2 GPS			
TTY-2 H			

LAMPS

DESIG	LOCATION FS	APP FIG.	EQPT
1D3	34F8	47	
2D	26D0	78	
3D	34C1	20	
3DR	34C1	21	
3DR	34C1	19	
4D	26G2	13	
5D	26B0	13	
6D	26D0	13	
7D	26C0	13	
A	20D8	25	
AID	20D0	66	
ALM	7B8	3	
ANI	26B0	66	
ANN	36B8	45	
A NO	20C0	5	
A OPR	20C1	5	
ART	16A2	5	

LAMPS

DESIG	LOCATION FS	APP FIG.	EQPT
B	20D8	5	JACK, KEY, & LAMP PANEL
BPT	42H5	3	
BY	6F2	4	
BY	6F2	9	
C	20D8	5	
CBY	42H4	3	
CHT	32E3	32	
CNX	22G8	48	
CP	11C4	4	
CP	11A7	9	
DAR	32C3	32	
DF	1F9	5	
DP	34C0	18	
EC	2C5	3	
EP	22D5	6	
FB	20B6	25	
FDC	1F7	41	
FEF	36A8	45	
FSI	32B3	32	
FS2	32A3	32	
FSF	36D8	45	
FT	20B5	25	
FU	20B4	25	
GROUP 0-19	2A7,C7	3	
GROUP 20-39	2A3,C3	B	
H	20B6	25	
HAD	33B5	34	
HFV	38F2	71	
HIT	32E3	32	
HOLD 0-19	4E4,G1, H1	3	
IB	20B9,D8	25	
IC	37F3	49	
ICR	42E9	3	
IDS	37G3	49	

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-A6A

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S

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APPARATUS INDEX

DESIG	LOCATION FS	APP FIG.	EQPT
LAMPS			
IF	37E3	49	
IG	20C7	25	
KP	20A6	25	
L FO	20C0	5	
L OPR	20C0	5	
MF	34C0	17	
MO	18G0	25	
N	5E3	3	
NA	36H8	45	
NS	36E8	45	
NSC	41B6	67	
OB	20B9,D8	25	
OF	23A6	25	
OG	20D8	25	
OI 0-9	26D8	24	
OT	20A7	25	JACK, KEY & LAMP PANEL
PB	18E0	5	
PCI	26C0	70	
PS	26E2	25	
PTF	36D8	45	
RA	1C8	25	
RF1	25C2	21	
RF1	32C3	32	
RF2	25G2	21	
RF2	32D3	32	
RP	17H6	5	
RPT	42H5	3	
RR	34C1	3	
RTF	36C8	45	
SDC	1F8	41	
SEL 0-9	3A/E5, G3	3	
SFL	32B3	32	
SR-TST	20B2	25	
SST	44G7	3	
SV	23E8	32	

DESIG	LOCATION FS	APP FIG.	EQPT
LAMPS			
T	20B5	25	JACK, KEY & LAMP PANEL
TA	7E6	3	
TBY	36G8	45	
TG	20A6	25	
TH	20C7	25	
TIP	1H1	56	
TRS	37G3	50	
TU	20B9	25	
U	20B8	25	
WN	36F8	45	

NETWORKS			
LRD	13D2	19	
R	13D1	19	E
T	13C0	19	E

RECEIVER, SINGLE HEADSET			
TH	12C7	25	

REGISTERS, MESSAGE			
CT	1A5	3	AA
FFT	33B4	33	AA
FST	33E4	33	AA
PB	1G5	3	AA
RST	1A3	3	AA

DESIG	LOCATION FS	APP FIG.	EQPT
RESISTORS			
2W	35F1	28	B,AX
2W1	35E2	28	B,AX
2W1	35E3	41	AB
2W2	35D2	28	B,AX
2W3	35F1	28	B,AX
2W5	35E1	41	AK
2W6	35E0	41	AK
2W7	35E1	41	
2W8	35F1	41	
2W9	35F1	41	
2W10	35F0	41	
2WA	35G1	28	C
2WB	35G2	28	B
A	14B2	4	
A	21E3	6	AK
A	14B2	10	AP
AA	3A/C2	3	AN
AA	14B8	4	
AA	18A2	5	AG
AA	22B2	6	AK
AA	14B8	10	AP
AB	5D1	3	AN
AB	14B8	4	
AB	18E0	5	A
AB	21C2	6	AK
AB	14B8	10	AP
AC	14B8	4	
AC	18B1	5	
AC	14B8	10	AP
AC	2E0	B	AN
AD	14E2	4	
AD	19A5	5	AG
AE	1G0	4	
AE	18B9	5	AG
AE	1G1	9	AP
AF	14E2	5	AG
AK	30D1	32	A
AL	30C6	32	A
ALV	12A7	66	
AN	14E3	5	AG
AW	30D3	32	A
AZ	30A2	32	A
B	14B2	4	
B	15A1	5	AG
B	21F4	6	AK
B	14B2	10	AP
BA	16D2	5	AG
BA	21G1	6	AK
BA	29A8	32	A
BB	16E2	5	AG
BB	29G6	32	A

DESIG	LOCATION FS	APP FIG.	EQPT
RESISTORS			
BC	14E8	5	AG
BD	18G0	5	AG
BE	19B4	5	AG
BJ1	28D0	16	E
BJ2	28D0	16	E
BK	12C8	17	E
BL	28D3	17	E
BM	28E4	17	E
BN	28E2	17	E
BO	28E2	17	E
BP	28E3	17	E
BQ	28E4	17	E
BR	28E1	17	E
BS	28F1	18	E
BT	28F3	18	E
BU	28H0	18	E
BV	2 H1	18	E
BW	28H2	18	E
BX	28H2	18	E
BY	28H3	18	E
BZ	28H3	18	E
C	14B2	4	
C	15B1	5	AG
C	21F4	6	AK
C	14B2	10	AP
CA	25C7	18	E
CB	25C7	18	E
CC	17F8	18	E
CD	28E1	19	E
CE	28E2	19	E
CF	28H4	19	E
CG	28H4	19	E
CH	13B1	19	E
CJ	13C0	19	E
CK	13D3	19	E
CKP	28D4	H	E
CP	11F4	4	
CP	11F4	4	
CP	11F5	9	AP
CP	11F6	9	AP
CP1	11F7	12	L
CPR	11E5	4	
CPR	11D7	9	AP
CRR	40B7	63	
CRT	40C2	63	
D	14E1	4	
D	15A1	5	AG
D	14B1	10	AP
DB	12C4	36	AP
DB1	12C4	36	AP
DL	25F2	21	E
DT1	31G3	41	AK
DT2	31G3	41	AK

DESIG	LOCATION FS	APP FIG.	EQPT
RESISTORS			
E	14E1	4	
E	15B1	5	AG
E	14B0	10	AP
F	14B0	4	
F	14B0	10	AP
FD	14F5	5	AG
FD1	14E5	5	AG
FT	31C8	32	A
FT1	31D7	32	A
G	14B0	4	
G	14B0	10	AP
G1	30E7	32	
G2	30D7	32	
G3	30D6	32	
G4	30D4	32	
G5	30E8	32	
G6	30F1	32	
G7	30E2	32	
G8	30E1	32	
G9	30D5	32	A
G10	30D9	32	
G11	30D8	51	
G12	30D8	51	
GV	30G2	32	
GV1	30C0	32	
GV2	30C2	32	
H	14B0	4	
H	14B0	10	
HP	40C6	63	
ID1	35E7	46	
ID2	35E8	46	
ID3	35E6	46	
IDT	37A1	46	
J	14B3	4	
J	14B3	10	AP
K	14B3	4	
K	14B3	10	AP
L	14B4	4	
L	14B3	10	AP
LC	25F5	18	F
LPD	13D2	18	E

DESIG	LOCATION FS	APP FIG.	EQPT
RESISTORS			
M	14B4	4	
M	14B4	10	AP
N	14B4	4	
N	14B4	10	AP
NP	40C4	63	
OP	14E5	54	AG
OP2A	18A0	54	AG
P	14B5	4	
P	14B5	10	AP
PA	44B4	73	
PB	44C4	73	
PC	44B4	73	
PD	44C4	73	
PE	44B5	73	
PF	44C5	73	
PJ	44D4	73	
PK	44E4	73	
PL	44D4	73	
PM	44E4	73	
PN	44D5	73	
PP	40A6	63	
PP	44E5	73	
R	14B5	4	
R	14B5	10	AP
R1	14D7	4	
R1	14D6	5	AG
R1	44C1	73	CA1
R1	44E1	73	CA3
R2	44C2	73	CA1
R2	44E2	73	CA3
R3	44C2	73	CA1
R3	44E2	73	CA3
R4	44C3	73	CA1
R4	44E3	73	CA3
RES1	37A2	46	
RF2	25E1	21	E
RFR	12D1	21	E
RFR	12D0	32	A
RFT	12D1	21	E
RFT	12B0	32	A
RL	12D4	36	AP
RL1	12D5	36	AP

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-A68

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S

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APPARATUS INDEX (CONT)

DESIG	LOCATION FS	APP FIG.	EQPT
RESISTOR			
RP	14D1	5	AG
RTP	10E6	72	
S	14B5	4	
S	14B5	10	AP
SF	12C8	17	E
SP	23E6	29	
SRA	44G3	73	
SSR	44B9	76	
SST	44B9	76	
T	14B6	4	
T	14B6	10	AP
T1	44B1	73	CAO
T1	44D1	73	CA2
T2	44B2	73	CAO
T2	44D2	73	CA2
T3	44B2	73	CAO
T3	44D2	73	CA2
T4	44B3	73	CAO
T4	44D3	73	CA2
TG	14E5	5	AG
TI1	6B6	4	AP
TI1	6D6	9	
TL	12B4	36	AP
TLI	12B5	36	AP
TRR	14E1	5	
TST	45A5	73	
TT1	35F7	42	
TT2	35C7	42	
TT3	35B8	42	
TT4	35D7	42	
TT5	35B8	42	
TT6	35A8	42	
U	14B6	4	
U	14B6	10	AP
V	14B6	4	
V	14B6	10	AP
V1	30B1	32	A
V2	30B1	32	A
VA	30B5	32	A
W	14B7	4	
W	14B7	10	AP
WC	4B6	31	E
X	14B7	4	
X	14B7	10	AP
Y	14B7	4	
Y	14B7	10	AP
Z	14B8	4	
Z	14B8	10	AP
ZC	4B7	31	E

DESIG	LOCATION FS	APP FIG.	EQPT
SELECTOR			
CBT	SEE APP FIG.	72	
G		3	
GA		8	
H		3	
S		3	
SP		6	
TA		3	
TST		5	
SOCKET, ELECTRON TUBE			
TM	35B2	28	B,AX
SWITCH			
CONN SW	SEE APP FIG.	1	CONN UNIT
CONN SW		22	
TIMER			
AST	1A6	56	
TRANSFORMER			
TST	12C3	12	L
TUBES, ELECTRON			
TM	35B2	28	B,AX
TTM	35F7	43	
V1	30C1	32	A
V2	30B6	32	A
VARISTOR			
A	12C7	25	AA

LEAD INDEX CONNECTING CIRCUITS

CIRCUIT TITLE	CKT LEAD INDEX LOC
22-VOLT 60 CYCLE AC SUPPLY CKT	7B/A5
AUTOMATIC TRANSMISSION TEST AND CONTROL CKT	7A/A7
AUXILIARY SIGNAL AND NIGHT ALARM CKT	7B/A0
FLOOR ALARM FRAME FUSE AND TIME ALARM CKT	7B/B0
INTERRUPTER FRAME CKT	7B/C0
MF CURRENT SUPPLY AND DISTRIBUTION CKT	7B/F0
MF SIGNAL GENERATOR CKT	7B/G0
MILLIWATT DISTRIBUTION CKT	7B/E0
MISC CKT FOR AUTOMATIC INC TRUNK TEST FRAME	7B/A1
MISC CKT FOR MISC RELAY RACK	7B/B1
MISC CKT FOR OTHER TEST FRAMES	7B/C1
MISC CKT FOR TANDEM TRUNK FRAME	7B/D1
OFFICE LINK AND CONNECTOR CKT	7B/E1
RECORDER CKT	7B/F1
REMOTE OFFICE TEST LINE CKT	7B/C0
TELETYPEWRITER CONTROL CKT	7B/A3
TONE DETECTOR CKT	7B/A4
TROUBLE INDICATOR CKT OR MARKER TEST CKT	7B/C4
TRUNK IDENTIFIER CKT	7B/E4
TRUNK SCAN CONTROL CKT FOR SSTI	7B/A8

LEAD INDEX

DESIG	LOCATION FS	CAD
AUTOMATIC TRANSMISSION TEST AND CONTROL CKT		
2.4D		
2.4M		
2.7D		
2.7M		
3.0D		5D9
3.0M		
3.3D		
3.3M		
3.6D		
3.6M		
3.9D		
3.9M		
4.2D		
4.2M		
4.5D		
4.5M		
4.8D		
4.8M		
5.1D		
5.1M		
5.4D		
5.4M		
5.7D		
5.7M		
6.0D		
6.0M		
6.3D		5D7
6.3M		
6.6D	9B0-9	
6.6M		
6.9D		
6.9M		
7.2D		
7.2M		
7.5D		
7.5M		
7.8D		
7.8M		
8.1D		
8.1M		
8.4D		
8.4M		
8.7D		
8.7M		
9.0D		
9.0M		
9.3D		
9.3M		
9.6D		
9.6M		
9.9D		
9.9M		
10.2D		5D9
10.2M		
10.5D		
10.5M		
10.8D		
10.8M		
11.1D		
11.1M		

DESIG	LOCATION FS	CAD
AUTOMATIC TRANSMISSION TEST AND CONTROL CKT		
11.4D		
11.4M		
11.7D	9B4	5D9
11.7M		
12.0D		
12.0M		
AD10	29E3	
ALM	31B4	
C	29A3	4C0
CFB	31B4	4E0
DAI	31B3	4F0
DA2-4	31B4	4F0
DV1,2	8B/F8	4C0
E	9B0	4C0
FNCK	32D1	
GT	29A2	
MM	29C3	
MV1	29H1	
MV2	31B3	
		4C0
NA	8C3	
NB	8D3	
NSE	29C3	
ONG	29C3	
PTD	29C3	
RD	12D6	4C0
REC	32D1	4C0
RL	12D6	4C0
SEND	32D1	
SND	31B3	4C0
ST	29C3	4E0
STV	30H5	
TD	12B6	
TL	12B6	
TTF	31B4	4C0
TTR	32D9	
VDM	32DR	
VF	32DR	

DRAWING ISSUE
52D FAC A/C
53D FAC A/C
54AR OMC
56A JER
58D
60D
61D

ISSUE 67B

AUTOMATIC TEST CIRCUIT (2) SD-25161-01-A7A

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-A7A

LEAD INDEX (CONT)

DESIG	LOCATION FS	LOCATION CAD
AUXILIARY SIGNAL AND NIGHT ALARM CKT		
NA	8C1	4E0
NB	8D5	4E0

DESIG	LOCATION FS	LOCATION CAD
FLOOR ALARM FRAME FUSE AND TIME ALARM CKT		
AG	8D5	2B/H4
TA	8B5, 7G3	2B/H4

DESIG	LOCATION FS	LOCATION CAD
INTERRUPTER FRAME CKT		
A	16F2	
A	18D2	
A	21C2	
A	25E1	
B	2G4, 3A/B0	
B	16F2	
B	18D2	
B	21C2	
B	23B8	
B	25E1	
F	25E1	
TA	7E4	
TA1	7F4	

DESIG	LOCATION FS	LOCATION CAD
MILLIWAT DISTRIBUTION CKT		
ST	29C3	4E0

DESIG	LOCATION FS	LOCATION CAD
MF CURRENT SUPPLY AND DISTRIBUTION CKT		
RO,1,2,4,7,10		2B/D7
TO,1,2,4,7,10	12G9	2B,D7

DESIG	LOCATION FS	LOCATION CAD
MF SIGNAL GENERATOR CKT		
GSI	12E9	2B/B7
TO,1,2,4,7,10	12G9	2B/E7

DESIG	LOCATION FS	LOCATION CAD
MISC CKT FOR AUTOMATIC INC TRUNK TEST FRAME		
RC	1F2	

DESIG	LOCATION FS	LOCATION CAD
MISC CKT FOR MISC RELAY RACK		
RC	1E0	2B/C0

DESIG	LOCATION FS	LOCATION CAD
MISC CKT FOR OTHER TEST FRAMES		
1	7D6	
2	7D6	

DESIG	LOCATION FS	LOCATION CAD
MISC CKT FOR TANDEM TRUNK FRAME		
RC	1E0	2B/C0

DESIG	LOCATION FS	LOCATION CAD
OFFICE LINK AND CONNECTOR CKT		
R	11G0	1A0, 1E0
S	6C0	1E0
S1	6A0	1A0, 1E0
T	11B0	1A0, 1E0

DESIG	LOCATION FS	LOCATION CAD
RECORDER CKT		
20-30	2C8	7C0
31-39	2C8	
40-50	2B4	
51-59	2C4	
60-69	3A/H6	
70-89	4G4	
90	11C5, 17D2	
91-93	17E3	
CA	1C9	
EC	2C8	
L	1E0	
NOR	5E7	
PB,PB1	1H4	
RA	1C9	
S1,S2	5A4	
S3,S4	5E7	
STB	7E6	
STT	7F6	

DESIG	LOCATION FS	LOCATION CAD
TELETYPEWRITER CONTROL CKT		
A	33D6	4E4, 12C8
AL	33F6	4E4, 12D5
ALM	33G6	4E4, 12D5
A NO	20D4	4E4, 12D5
A-OB	20F7	4G0, 12C8
A OPR	20D4	4E4, 12D5
BC	17G4	4G0, 12C8
B-OG	20F7	4G0 12C8
BL	17G4	4G0, 12C8
BP	7C2	4E4, 12D5
BPF	1H5	4E4, 12D5
BT	6F6	4E5, 12D5
BTT	6H3	4E4, 12D5
BY	36D9	6E6
CB	45C9	18G3
CBF	45C9	18G3
CHT	32D4	4E4, 12D5
CP	17G4	4G0, 12C8
DF	1H7	4E4, 12D5
EP	22D4	4E4, 12D5
FS 1,2	32D4	4E4, 12D5
FEF	36D9	6A0
FSF	36D9	6E6
HAD	33B6	4E4, 12C8
H-FB	20F7	4E4, 12D5
HIT	32D4	4E4, 12D5
HU0-4	3A/G7	4E4, 12C8
HU5-9	3A/G6	4E4, 12C8
IB-TU	20F7	4E4
IF	37F3	7F3
KP-TG	20F7	4E4, 12D5
L-FO	20D4	4E4, 12D5
L-OPR	20D4	4E4, 12D5
MO	18H0	4E4, 12D5

DESIG	LOCATION FS	LOCATION CAD
TELETYPEWRITER CONTROL CKT		
NA	36G9	4G0, 12C8
NS	36D9	6E6
OF	23A9	4E4, 12D5
OP	17G4	4G0, 12C8
OWM	17G4	4G0
PB	33F6	4E4, 12D5
PS	26E2	4E4
PTF	36D9	6E6
PTR	33E6	4E4, 12D5
RF1,2	32D4	4E4, 12D5
RTF	36D9	6E6
SFL	32D4	4E4, 12D5
SSL	36C9	6E6
T	17G4	4G0
T1	17G4	4G0, 12C8
T1A,B	9G2	4E4
T2A,B	9G4	4E4
T3	33C6	4E4, 12C8
TBI	33D6	4E4, 12C8
T-FT	20D4	4E4, 12D5
THO-9	3B/E0	3B/B7 12A3
TH-IG	20F7	4E4, 12D5
TN	5B8	4E4, 12C8
TNO-9	4H3	4E4, 12C8
TNA,B	5B8	4E4, 12C8
TNS	17G4	4G0
TR	6F6	4E4, 12D5
TTHO-3	3B/E0	3B/B7 8A7, 12A3
TU-IB		4E4, 12D5
U	5B8	4E4, 12C8
UO-9	4H3	4E4, 12C8
UA,B	5B8	4E4, 12C8
U-FU	20D4	4E4, 12D5
WN	36D9	6E6
XCR	3E6	4E4

DESIG	LOCATION FS	LOCATION CAD
TONE DETECTOR CKT		
ANN	36D3	6A6
ARA	36A3	
BY	36C3	
HTF	36B2	
MB	36D3	
ON	36E3	
PTF	36A3	
R	36B2	6A0
RO	36C3	6A6
ST	36C2	6A6
T	36A2	6A0
TF	36E3	6A6

DESIG	LOCATION FS	LOCATION CAD
TROUBLE INDICATOR CKT OR MARKER TEST CKT		
KR	37G1	7G1
STR	37E1	7G7
TRS	37F1	7G7

DESIG	LOCATION FS	LOCATION CAD
TRUNK IDENTIFIER CKT		
HMS	37A1	7H7
IF	37D1	7G3
MG1	37B1	7G3
OK	37C1	7F3
TIS	37B1	7B3

DESIG	LOCATION FS	LOCATION CAD
22 VOLT 60 CYCLE AC SUPPLY		
AST	1A6	9A4
GRD	1A6	9A4

DESIG	LOCATION FS	LOCATION CAD
REMOTE OFFICE TEST LINE CKT		
AL	45D0	19G3
BD	45D0	19D0
BL	45D0	19G3
BSW--	44E0	16A5
HO-19	45D0	19E7
R	44E0	19G3
RI	44E0	19G3
RCI	45A8	19G3
RD	45D0	19C3
RSW--	44E0	16A7
SA	45D0	19D0
SB	45D0	19D0
SELO-4	3A/F3	19C3
SEL5-9	3A/G3	19C3
SIA	45D0	19G3
SIB	45D0	19G3
T	44E0	19G3
TI	44E0	19G3

DESIG	LOCATION FS	LOCATION CAD
TRUNK SCAN CONTROL CKT FOR SSTI		
CIB--	3B/D3	18D0
CIS	44D9	17E7
GRI	44D9	17D7
HO-4	4F3	17E7
H5-9	4F3	17E7
H10-14	4F3	17E7
H15-19	4F3	17E7
R--	44D9	18D0
SO-4	3A/C4	17D7
S5-9	3A/C4	17D7
SS	44D9	17D7
T--	44D9	18D0
TFB	1G7	17D7

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-A7B

BELL TELEPHONE LABORATORIES INCORPORATED

SHEET SIDE 6S

SD-25161-01-A7B

OPTION INDEX

APP OR WRG	LOCATION
1	APP FIG. 1,10B5
3	APP FIG. 3,2A3, B3,C3
4	APP FIG. 4,1B4, 6D6,F3,F5
5	APP FIG. 5
6	APP FIG. 6
7	APP FIG. 7
8	APP FIG. 8
9	APP FIG. 9,1B4, 5B6,6B2,D7,F5
10	APP FIG. 10
11	APP FIG. 11
12	APP FIG. 12
13	APP FIG. 13
14	APP FIG. 14
15	APP FIG. 15 41B/A7-G7,B1-H1
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17	APP FIG. 17
18	APP FIG. 18
19	APP FIG. 19
20	APP FIG. 20
21	APP FIG. 21
22	APP FIG. 22
23	APP FIG. 23
24	APP FIG. 24
25	APP FIG. 25
26	APP FIG. 26
27	APP FIG. 27
28	APP FIG. 28
29	APP FIG. 29
30	APP FIG. 30
31	APP FIG. 31
32	APP FIG. 32
33	APP FIG. 33
34	APP FIG. 34
35	APP FIG. 35
36	APP FIG. 36
37	APP FIG. 37
38	APP FIG. 38
39	APP FIG. 39
40	APP FIG. 40,10G7

APP OR WRG	LOCATION
41	APP FIG. 41
42	APP FIG. 42,11C3, G3,36A1,C2,E7,G8, H2
43	APP FIG. 43,35E8
44	APP FIG. 44,36F2
45	APP FIG. 45
46	APP FIG. 46,1B7, H3,7A7,B2,B4,E6
47	APP FIG. 47
48	APP FIG. 48
49	APP FIG. 49,37F3
50	APP FIG. 50
51	APP FIG. 51
52	APP FIG. 52
53	APP FIG. 53
54	APP FIG. 54
55	APP FIG. 55
56	APP FIG. 56
60	APP FIG. 60
61	APP FIG. 61
62	APP FIG. 62
63	APP FIG. 63
64	APP FIG. 64
65	APP FIG. 65
66	APP FIG. 66,27D5
67	APP FIG. 67
68	APP FIG. 68
69	APP FIG. 69
70	APP FIG. 70, 24B/E4,27D4
71	APP FIG. 71
72	APP FIG. 72
73	APP FIG. 73
74	APP FIG. 74
75	APP FIG. 75
76	APP FIG. 76,3B/D4
77	APP FIG. 77
78	APP FIG. 78,17E7, 38B1-B4,40C0,41A/B5
FIG.A	APP FIG. A,2A4, C4,H3,3D0
FIG.B	APP FIG. B,2D5
FIG.C	APP FIG. C,19B1
FIG.D	APP FIG. D,18B6, C5,19B1
FIG.E	APP FIG. E,4B2, 11C6,H6,14C1, 17C6,C7,E5,22C6
FIG.F	APP FIG. F,4B2 11A6,C6,D6,E6,G6, 22C5,C6,23G5,H1
FIG.G	APP FIG. G,4B2, 11A6,C6,D6,E6,G6, H6,14C1,17C7,D6, E5,22C5,C6,23G5, 23H1
FIG.H	APP FIG. H
FIG.J	APP FIG. J

APP OR WRG	LOCATION
FIG.K	APP FIG. K,6D8,G3
FIG.L	APP FIG. L,7A8, 17C0
FIG.M	APP FIG. M
FIG.N	APP FIG. N
FIG.P	APP FIG. P
FIG.Q	APP FIG. Q
Z	7D6
Y	7B3,8A/B3
X	APP FIG. 3,7B3, 8A/B3
W	APP FIG. 5
V	APP FIG. 5
U	APP FIG. 4
T	APP FIG. 4
S	APP FIG. 3
R	APP FIG. 3
Q	APP FIG. J
P	APP FIG. J
N	APP FIG. 3,5
M	APP FIG. 3,5
K	APP FIG. 5
J	APP FIG. 5
H	APP FIG. 6
G	APP FIG. 6,4B1
F	APP FIG. 5,4A1
E	APP FIG. 5,4B1
D	APP FIG. 1
B	APP FIG. 1
A	APP FIG. 1,3A/D0
ZA	APP FIG. 1
ZB	APP FIG. 1
ZC	APP FIG. 25
ZD	APP FIG. 25
ZE	APP FIG. 4
ZF	APP FIG. 4
ZG	APP FIG. 5
ZH	APP FIG. 5
ZJ	APP FIG. 5
ZK	APP FIG. 5
ZM	APP FIG. 5
ZN	APP FIG. 5

APP OR WRG	LOCATION
ZP	APP FIG. 6
ZQ	APP FIG. 6
ZR	APP FIG. 5
ZS	APP FIG. 5
ZT	APP FIG. 3
ZU	5E2,.1,G4,G6
ZV	APP FIG. 5
ZW	APP FIG. 5
ZX	APP FIG. 5,7H2, 15A7,E3,F1,F3, G4,16E3,16F0
ZY	16E7
ZZ	16E7
YA	10F3
YB	10F3
YC	6D3
YD	6D3
YE	5F1,F3,G4,G6
YF	15E3,G3,16E3,F0, G0
YG	APP FIG. 5
YH	APP FIG. 1
YI	18E6,E7
YJ	APP FIG. 5,9,6D6
YK	APP FIG. 9,6B6
YL	11D2,E1,E2
YM	1D1,E2,6B1,D0,D2, D7,E1,E2,E7,10E7, 23E0,34F4,F5
YN	1D3,E2,6B1,B3, 11G3,23E0
YP	1D3,E2,6B1,D0,D2, E1,E2,10E7,11G3, 23E0,34F4,F5
YQ	1D1,E2,6B1,D0,D2, D7,E1,E2,10E7, 23E0,34F4,F5
YR	APP FIG. 3
YS	APP FIG. 3
YT	APP FIG. 3
YU	5B4,B5,23A2,C2
YV	6D8,G4,G5,H5,11D2, E2
YW	6G4,G5,H4
YX	1E5,6E5
YY	APP FIG. 12,1D5, D6,E5,6E5
YZ	APP FIG. 17,12C8

APP OR WRG	LOCATION
XA	23A2,C2
XB	5B5
XC	6E3
XD	6E3
XE	1E1
XF	10F3,F4,16F0,G0, H0
XG	APP FIG. 3,16G1, G2,22C5
XH	APP FIG. 3,16G1, G2,22C5
XJ	APP FIG. 4,5,9, 11E4,F6
XK	APP FIG. 4,5,9, 11D4,D7,E4,F6
XL	1C3,25B6
XM	1C3,4B4,B5,25B7
XN	35C2
XP	35C2
XQ	APP FIG. 4
XR	APP FIG. 28,6C7, 34E9
XS	APP FIG. 28,6C7, D8,11F1,19F7,F8, 26A8,31A1,D0,D1, 34E9
XT	APP FIG. 3,33,1H5, 3A/F7,G5,3B/C0,C2,D0, D2,E0,E2,F0,F2,G0,G2, H0,H2,4E6,F3,F4,G2,G3, H2,6F6,G3,18H0, 20C0, C1, C4, E6, E8, E9, 22D5, 23A7, A8, B7, 32B2, C3, D3, E3, 33C2, D4, F5, F6
XU	5G3,6F6,7B2,23A7, B8
XX	6D2,7E3,10E6,E8,F7, 17C2,C4,D3,26E1
XY	APP FIG. 9,13, 6D2,23E1,E2,27B2, C2
WA	APP FIG. 32,9B0,D5, D7,12B3,D3,D6, 23G1,24B2,B3,C1,C2, D1,E1,F1,G2,G3, 29A1,C1,C2,D1,E3, F2,F7,G1,30D4,D5, D8,H5,31B1,B3,C4, 32C1,D1,D7,E7
WB	6D7,12B3,D3,D6, 23G1,24B2,B3,C1,C2, D1,E1,F1,G2,G3, 29F8,G0,G4,30F6, F9,31B1,B7,C3, 32B2,F1
WC	8A/B4,C3,D4
WD	8A/B4,C3,D4
WE	23F2,F5
WF	APP FIG. 13,23F1, F2
WG	APP FIG. 38,8B/F8

APP OR WRG	LOCATION
WH	7C2,D2,33C1,E1,G5
WJ	APP FIG. 12,14, 12C8,D8
WK	APP FIG. 12,14, 12C3,C8,D8
WM	8A/B4
WN	33C1,F4,F5
WP	8B/A1,G1
WR	23B2,C3
WS	23B2,C2
WT	APP FIG. 3,7A6,B4, C2,J2
WU	APP FIG. 3,7A6,B4, J6
WV	12C7
WW	APP FIG. 25
WX	18D,48J
WY	APP FIG. 3,1B0
WZ	APP FIG. 28,1C4, 6C3,19F9,31D1, 35B3,C3,E0,E2
VA	31E0,E1
VB	31E1
VC	1G7
VD	26E1
VE	APP FIG. 32
VF	APP FIG. 13
VG	APP FIG. 35,29B1
VH	APP FIG. 35,
VJ	APP FIG. 35,34G4
VK	9B9
VL	9B0,B9
VM	7D2,E2,H2
VN	7D2,E2,F2,G2,H2
VP	APP FIG. 5
VQ	6E7,31D2
VR	6E7,11F2,31D2,E2, 35D3
VT	APP FIG. 42,19G8
VU	APP FIG. 42,18C9, F1,23B0
VV	APP FIG. 45,29C0, 36A7,D8
VW	APP FIG. 42
VX	36A8-G8
VY	9B9

APP OR WRG	LOCATION
VZ	9B9
UA	APP FIG. 5,14D0, 18F0,23A7
UB	APP FIG. 5,14D0, 18F0,23A7
UC	23D0
UD	23B0,D0,G0,29A7
UE	23A0,A1,D0,G0, 29A7
UF	31E3
UG	2D5,33E5,E6,F5
UH	APP FIG. 3,33E5
UJ	APP FIG. 3,7B3, 8A/B3
UK	APP FIG. 46
UL	APP FIG. 44
UM	APP FIG. 3,11G1
UN	APP FIG. 6
UP	APP FIG. 6
UQ	APP FIG. 25
UR	APP FIG. 25,18B, E1,H4,2B3,B6,C3, C5,C7,3A/F5,F7, 4E6,F3,F4,G2,G3, H2,5B3,B4,D7,E5, 7A9,11C5,17D4
US	6C4
UT	APP FIG. 17
UV	32D0,D2,36D5
UW	30F8,32C2,36D5
UX	12E8
UY	7F6
UZ	3F6
TA	34E8
TB	34E8
TC	6H3
TD	10A1
TE	35D8
TF	35D8
TG	APP FIG. 13
TH	7E3
TI	7F3
TJ	APP FIG. 9
TK	1F4
TL	1E3,33B4,D4
TM	1A6,B7,E1,2D5,5B4, D5,E5,29C1,33D5

APP OR WRG	LOCATION
TO	23A1
TP	23A1
TR	31C4
TS	31B3,C4,D4
SO	33D5
SP	31C4
SR	11F8,12C2
SS	11F8,12B2,C2,D2, 23A3
ST	23H0
SU	APP FIG. 32
SV	APP FIG. 60,8B/F8
SX	APP FIG. 5,18F3
SY	34F6,G9
SZ	34G9
RA	36D3
RB	APP FIG. 13,14, 15,26B3,C3,G3,G4, 27D3
RC	APP FIG. 13,14, 15,26B0,27C5,D3
RD	10A7
RE	24B8, 41B/A1-G1
RF	9D7
RG	9D7,29A0
RH	APP FIG. 3
RI	20A9,41E2
RJ	APP FIG. 43,45, 20A9,36B8
RK	2B4,B8,D4,D8, 3A/E6,G3,3B/D6, F4,H3,4D5,E5,F2, G2,5G3,10B5,37B2

APP OR WRG	LOCATION
RL	2B4,B8,C4,C8,D8, 3A/E7,F4,G3, 3B/D6,H3,4D5,F2, G2,5G3,10B5,37C2
RM	APP FIG. 25,18B4, 20A8,B5,B6,D7,F0
RN	APP FIG. 25,18B4, 20A8,B5,C6,D6,E7, E6
RP	10A9
RQ	APP FIG. 17
RR	10C6,11H0
RS	APP FIG. 3,12,13, 15,16,18,19,29, 32,34,41,42,44, 51,56
RT	31D1
RU	31D0
RV	40B1
RW	26D1,D3,27A2,34A0
RX	34D3
RY	APP FIG. 3,16G0, 22C5
RZ	37B1
QA	APP FIG. 25
QB	17F3
QC	20A2
QD	APP FIG. 5,1G7, 20A2
QE	APP FIG. 67,34H6
QF	11G0,H0
QG	11G0
QH	3A/D3,G3 G5,4D2, G2,H2,7A5,11C2,G2
QJ	APP FIG. 3,7C8
QL	APP FIG. 2

ISSUE 68B

AUTOMATIC TEST CIRCUIT

(2)

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APP OR WRG	LOCATION
QM	APP FIG. 72
QN	APP FIG. 73
QP	1C1,D1,F6,2B5,B8, D4,D8,G3,3A/A3,B6, C7,D0,D7, E3,G3, H3,3B/E6,F4,H4,4E5 5D7,H3,7B1,10C5, 33E5,37B2
QQ	APP FIG. 3
QR	APP FIG. 73,3A/D7, 42C2,44F7,45C6,D5
QS	1D1,2B5,B8,D4,D8, 3A/B6,C7,D0,G3,H3, 3B/D6,F4,H4,4D1, E5,G1,H1,5B3, C2,D7,H3,7A4,10C5, 33E5,37B2,44F2, 45C6
QT	44E7,F7
QU	APP FIG. 3,B
QV	APP FIG. 3,B
QW	CAD 26
QZ	20E7,E8,36G8
QY	5G6
QX	5G6
PA	APP FIG. 73,43C5, E5,F5,G3,G5
PB	44C1,C5,C6,D1,D5, D6
PC	6C0,45C1,D1
PD	APP FIG. 3
PE	APP FIG 3

APP OR WRG	LOCATION
PF	45G0
PG	APP FIG. 77,8B/C8, 45F0,G0
PH	APP FIG. 77
PI	26A0
PJ	APP FIG. 77
PK	14A7,A9,G9,20D4, 41A/A4
PL	APP FIG. 13
PM	41A/A3,G0,H1
PN	4A6
PO	41B/A1-G1
PP	APP FIG. 12
PQ	APP FIG. 72
PS	16F1,18B4,D0,19B3
PT	6C8,15F1,F2,F5, 16F0,F3,18B4,B5, D0,F3,19A8,B3, 20E5,31D0,24B/B6, E2,F3,26A0,B2,D0, 31D0,38B7
PU	APP FIG. 5
PV	18G5,19D8
PW	40C0
PX	APP FIG. 13
PY	1C3
PZ	18A6,G2,H0,20A8
OA	24B/B3,26H9
OB	APP FIG. 66, 24A/A8,24B/C5, 34D5
OC	APP FIG. 66
OD	APP FIG. 66
OE	17E6
OF	14A7,17E6
OG	APP FIG. 3

APP OR WRG	LOCATION
OH	APP FIG. 3,9, 6D2,23E1,E2,27E2, C2
OI	23A7
OJ	APP FIG. K
OK	APP FIG. K
OL	APP FIG. B
OM	APP FIG. B
ON	23B7
OP	APP FIG. 45
OQ	APP FIG. 41

APP OR WRG	LOCATION

APP OR WRG	LOCATION

APP OR WRG	LOCATION

APP OR WRG	LOCATION

APP OR WRG	LOCATION

APP OR WRG	LOCATION

ISSUE 69AC

AUTOMATIC TEST CIRCUIT

SD-25161-01-A9

BELL TELEPHONE LABORATORIES INCORPORATED

CHRG SIZE 6S

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FS I
CONNECTOR CONTROL
START AND ADVANCE

TO 22V 60HZ AC SUPPLY

RNI 1,11 2T,-

RN 1 2T

ST 11B 11T 1500

HI 28

C2 8T 7 TST SELECTOR 2 20 20C2

ADV

RP 4 5B 3

RP8 2 3T

IC 1 M

RST MR RBI LTI 1000

REP L KEY 3A 2 1

CT MR LTI RBI 1000

CP 1105

37G2 KR UK

1187

PEM CP 2782 1,1 28,-

CT 3681

DT1 3 4B DT2 1C 11B BTG 1 2T

DTC 3 4T

V 108 PY XL

WC 2 3T XM

AV 8T 7

SP4 28 1

C4 8T 7 SP6 2T 1

RAC 9 STOP 9 ALL

CA3 8 9T STI 33E4

S SEL ARC 4 N6G 21 21 G 2F3 22 22 S 3A/A2

C 5T 4

C3 8T 7

HI -48 B 3B 1300 H 28 1

ST L KEY 1 2D

TO RECORDER CKT L UR

TO MISC CKT FOR AUTO. INC TEST FR & MISC CKT TDM TRK FR & MISC. CKT FOR RELAY RACK RC XE

MISC CKT FOR INC TRK FR

RNI 28,7

AST L KEY 3A 2

PR 5B 4 3

AE 1000 A .5

A .5 AE 1000

PB 2B A

VT 2 3T

PT 2,2 3T,-

IF 3 BYI 3,10 4T,- IDT .1

TIP

AST L KEY 5B 4 ASTA 2 ASTF 2

TO RECORDER CKT PB PB1

TO TTY CONT CKT BPF

APB L KEY 1 2D 33RI 1 2B REP L KEY 5D 4

PB MR LTI RBI 1900

FST MR A 1

RI 3T 2 1

FFT MR A 3D

PB MR A 1

CT MR A 1

CA 2B

TA L KEY 2D

REP L KEY 2 1

H 5T 4

CA2 6T 5B 2500

CA1 2 3T

CA1 4T 3B 2000

MDP 6 5 7B

CA5 6T 5B 2500 F -48

CA5 4B 3

CA2 5T

CA3 6T,8T OR 12T 5B,7B,OR 11B 2500

STOP 1

CA3 3

ST 1 2B 3

AOSS L KEY 3B 2 1

TFB TO TRK SCAN CONTROL CKT

BYI 4T,- 3,9

TO TTY CONT CKT

AST L KEY 1 2D

ASTF U L B 1000

AST TIMER MOT 4 3

AST U L B 500

ASTA IL 2L B 640

PRS UH

AST L KEY 6D 5

CA L KEY 1 2D

CA S,R,ZT 3T,5T OR 6T 3B OR 5B 2500

RA UR

TO RECORDER CKT

FDC 8T 7B 2500 P -48

SDC 8T 7B 1000 P -48

C3 L 7B 6

C3 19D8 31G6

DTC 11T 10 BTG 3 4T DT2 5 6B

DTC DTI DT2 BTG

FDC SDC FDC BTG SDC

C5 7 8B

DF 20A3

DSC

DRAWING ISSUE	
37D	PRM CDM AMR
39AR	JLK AMR
41D	PMB CLC AMR
47D	MAS PCJ AMR
48A	KGC MLL AMR
49D	MLL AMR
50C	CMC
54AR	PCJ AMR
57A	FLK
58D	
61D	

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2) SD-25161-01-B1

BELL TELEPHONE LABORATORIES INCORPORATED - 3

SD-25161-01-B1

STABILO

FS2
CONNECTOR CONTROL GROUP SELECTION

(B) GA SEL ARC 3 NBG — A — ALL — 3,5,7,9 3,5,7,9 / 11,13,15 11,13,15 / 17,19,21 17,19,21 — 2,4,6,8 2,4,6,8 20,21,22,23 / 10,12,14,16 10,12,14,16 24,25,26,27 / 18,20,22 18,20,22 28,29,30 — 20-30

GROUP (20-30) — (B) GROUP(20-30) 2Y (SEE NOTE 141) — QV — QU — JV — UR — 20-30 — B - 48 — 10-50 TO RECORDER CKT

(3) — CID20 20 12B 11 — CID30 30 12B 11 — RL — B — RK — QS — N — QP — T

(B) GA SEL ARC 4 NBG — A — ALL — 1,3,5,7 23,25,27,29 / 9,11,13,15 31,33,35,37 / 17,19,21 39,41,42,43 — 24,26,28 2,4,6 31,32,33 / 30,32,34 8,10,12 34,35,36 / 36,38,40 14,16,18 37,38,39 / 44 22 — 31-39

GROUP (31-39) — (B) GROUP(31-39) 2Y (SEE NOTE 141) — QV — QU — UR — 51-59 TO RECORDER CKT — B - 48

(3) — CID31 31 12B 11 — CID39 39 12B 11 — RL — B — RK — QP — T — QS — N

(B) GA SEL ARC 4 NBG — A — ALL — 1,3,5,7 23,25,27,29 / 9,11,13,15 31,33,35,37 / 17,19,21 39,41,42,43 — 24,26,28 2,4,6 11,12,13 / 30,32,34 8,10,12 14,15,16 / 36,38,40 14,16,18 17,18,19 / 22 44 31,33,35,37 9,11,13,15 — 11-19

GROUP (10-19) — (B) GROUP(10-19) 2Y (SEE NOTE 141) — QV — QU — B - 48 — TO RECORDER CKT

EC 2Y — UR — 31-39 — B - 48

CID11 11 12B 11 — CID19 19 12B 11 — RL — B — RK — QS — N — QP — T

(B) GA SEL ARC 4 NBG — A — ALL — 1,3,5,7 23,25,27,29 / 9,11,13,15 31,33,35,37 / 17,19,21 39,41,42,43 — 24,26,28 2,4,6 31,32,33 / 30,32,34 8,10,12 34,35,36 / 36,38,40 14,16,18 37,38,39 / 44 22 — 31-39

77,1U 78,2U — (OL,OM) (B) GB 1775, 2450 — -48

(B) GA 11B,2L 11T,1L 1500, 2450 — RESTORE TO NORMAL AND END OF CYCLE

(OL,OM) (B) GB 5,- GB,9 B

EC 2Y — UG — UH — UH — 2B 1 B — PRS — 10T 8B 1500 B -48

(56) AST (3) RN L KEY L KEY 1 2C 2B 1 — TM

(B) AC 800 0.5 (B) E — (B) GA 5T,1T 176 C - 48

(B) GA SEL ARC 1 NBG — A — ALL — 3,5,7,9 3,5,7,9 / 11,13,15 11,13,15 / 17,19,21 17,19,21 — 2,4,6,8 2,4,6,8 / 10,12,14,16 10,12,14,16 / 18,20,22 18,20,22

ST — B — 4 5B — 3A/FO

RN — B — 4T 3 — 3A/FO — RN

G SEL ARC 1 NBG — A — GR 5G2 — 2,4,6,8 2,4,6,8 0,1,2,3 / 10,12,14,16 10,12,14,16 4,5,6,7 / 18,20,22 18,20,22 8,9,10 — 0-10

GROUP(0-9) — (B) GROUP(0-9) 2Y (SEE NOTE 141) — QV — QU — B - 48

CID0 0 12B 11 — CID10 10 12B 11 — RL — B — RK — QP — T — QS — N

ST — 3 4T B — 5A3

(OL,OM) (B) GA 4,2 3,- 5T,-

(OL,OM) (B) GA 6,- 7,4 8B,- 8T,- 7,5 6,-

(B) (OL,OM) GA 3,- 4,3 5B,-

CONNECT TO ALL WORKING TERMINALS

S SEL ARC 4 NBG — G — 21 21 — ALL — 75 STOP 9 — ST L KEY A 2D 1 — 9T 8 CA3 — RY — IC3

CONNECT TO ALL WORKING TERMINALS

G SEL ARC 2 NBG — 1,3,5 23,25,27 / 7,9,11 29,31,33 / 2,4,6 24,26,28 / 8,10,12 30,32,34 — ALL — 35,37,39 13,15,17 / 41,43 19,21 / 36,38,40,42 14,16,18,20 — A — 44 22 GB — 3A/D0

CONNECT TO ALL UNEQUIPPED TERMINALS

(B) GA SEL ARC 2 NBG — 1,3,5 23,25,27 / 7,9,11 29,31,33 / 2,4,6 24,26,28 / 8,10,12 30,32,34 — ALL — 35,37,39 13,15,17 / 41,43 19,21 / 36,38,40,42 14,16,18,20 — A — 44 22

CONNECT TO ALL UNEQUIPPED TERMINALS

QP — G PCR NL KEY 2B 1 B — G PCS NL KEY 2D 1 A

INT FR CKT — PC — ST 8B 7 B — 5C4

G SEL — G — 1 2 — 5T 3 176 C - 48

A — 0.5 — AA — AA 800 800 B — 3A/C3

ISSUE 63B

AUTOMATIC TEST CIRCUIT — SD-25161-01-82

BELL TELEPHONE LABORATORIES INCORPORATED — 6S

SD-25161-01-82

DRAWING ISSUE

36D	TPG
40D	SCY, L4, AUR, JAS, PGY, AMB, KC, N6, ADD
47D	
48A	
58D	
61D	

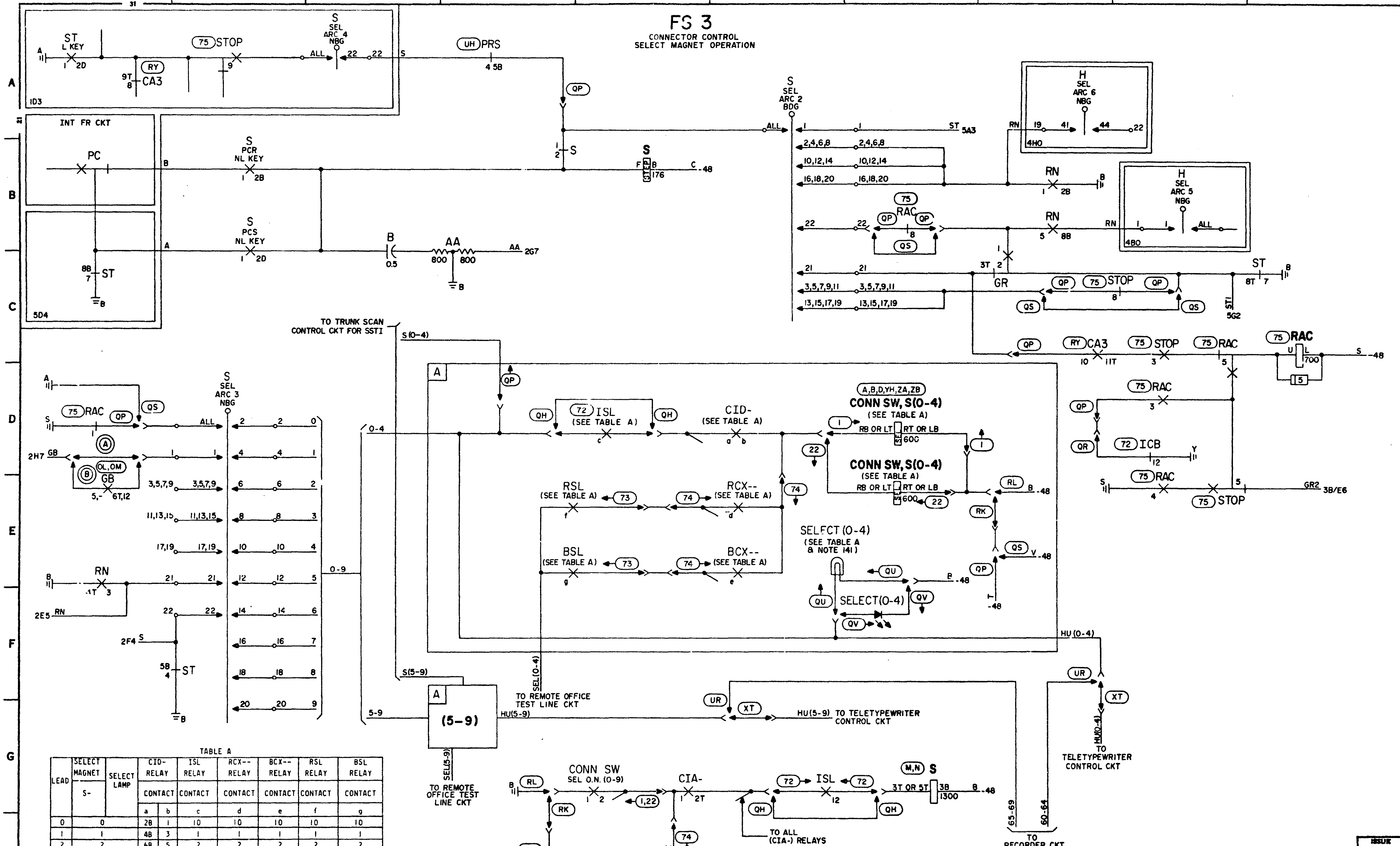


TABLE A

LEAD	SELECT MAGNET S-	SELECT LAMP	CID- RELAY CONTACT a	CID- RELAY CONTACT b	ISL RELAY CONTACT c	RCX-- RELAY CONTACT d	BCX-- RELAY CONTACT e	RSL RELAY CONTACT f	BSL RELAY CONTACT g
0	0		2B	1	10	10	10	10	10
1	1		4B	3	1	1	1	1	1
2	2		6B	5	2	2	2	2	2
3	3		8B	7	3	3	3	3	3
4	4		10B	9	4	4	4	4	4
5	5		2T	1	5	5	5	5	5
6	6		4T	3	6	6	6	6	6
7	7		6T	5	7	7	7	7	7
8	8		8T	7	8	8	8	8	8
9	9		10T	9	9	9	9	9	9

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-B3A

BELL TELEPHONE LABORATORIES INCORPORATED

6S

FS 4

CONNECTOR CONTROL TRUNK GROUP LOCATION

(B) GA SEL ARC 5 NBG

20,21,22,23	2,4,6,8	2,4,6,8	ALL		
24,25,26	10,12,14,16	10,12,14,16	1,3,5,7	1,3,5,7	
28,29,30	18,20,22	18,20,22	9,11,13,15	9,11,13,15	
			17,19,21	17,19,21	

(B) GA SEL ARC 6 NBG

31,32,33	2,4,6	24,26,28	ALL		
34,35,36	8,10,12	30,32,34	23,25,27,29	1,3,5,7	
37,38,39	14,16,18	36,38,40	31,33,35,37	9,11,13,15	
			39,41,42,43,44	17,19,20,21,22	

TO OTHER (CI-) RELAYS AS REQD

(PQ) ICRL 7 — H 5G6

ST 6 — 7T ST — 8

6E3

G SEL ARC 6 NBG

ALL			24,26,28	2,4,6	11,12,13
1,3,5,7	23,25,27,29		30,32,34	8,10,12	14,15,16
9,11,13,15	31,33,35,37		36,38,40	14,16,18	17,18,19
17,19,21	39,41,43		42,44	20,22	

G SEL ARC 5 NBG

ALL			4,6,8,10	4,6,8,10	1,2,3,4
1,3,5,7	1,3,5,7		12,14,16	12,14,16	5,6,7
9,11,13,15	9,11,13,15		18,20,22	18,20,22	8,9,10
17,19,21	17,19,21		2	2	

TO OTHER (CI-) RELAYS AS REQD

(XT) TH0 — CIA(0,10,20,30) — 9 10T — (XT)

TH1 — CIA(1,11,21,31) — 9 10T

TH2 — CIA(2,12,22,32) — 9 10T

TH3 — CIA(3,13,23,33) — 9 10T

TH4 — CIA(4,14,24,34) — 9 10T

TH5 — CIA(5,15,25,35) — 9 10T

TH6 — CIA(6,16,26,36) — 9 10T

TH7 — CIA(7,17,27,37) — 9 10T

TH8 — CIA(8,18,28,38) — 9 10T

TH9 — CIA(9,19,29,39) — 9 10T

TTH0 — CIA(0-9) — 5 6B

TTH1 — CIA(10-19) — 5 6B

TTH2 — CIA(20-29) — 5 6B

TTH3 — CIA(30-39) — 5 6B

TO TELETYPEWRITER CONTROL CKT

TO TRUNK SCAN CONTROL CKT FOR SSTI — CIB- (76)

CIA- 13B 13T 2.5kΩ

CIB- CIA- 12T 11 — 13T 13B 2.5kΩ

CIC- CIB- 12T 11 — 13T 13B 2.5kΩ

CID- CIC- 12T 11 — 13T 13B 2.5kΩ

GR CID- 11 12T — 4T 4B 2.5kΩ

(RL) (RK) (QS) (QP) (T) -48 B -48 V -48

GR2 3A/E9

GR2 44F5

TO CORRESPONDING TERMINALS OF OTHER (CID-) RELAYS

(RL) (RK) (QS) (QP) (B) (T) N

68B

AUTOMATIC TEST CIRCUIT	SD-25161-01-838
BELL TELEPHONE LABORATORIES INCORPORATED	6S

FS 5

CONNECTOR CONTROL
TRUNK SELECTED

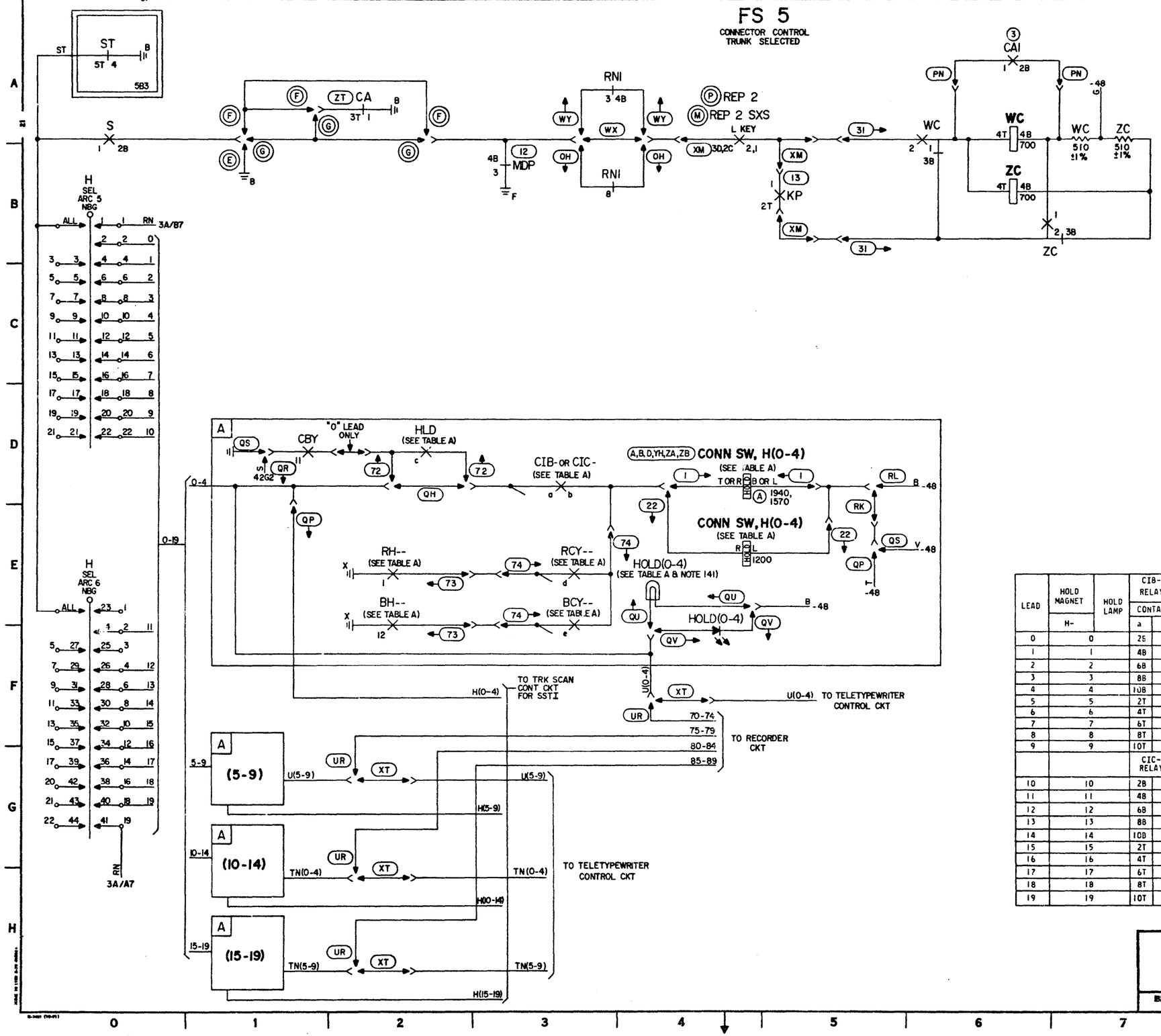


TABLE A

LEAD	HOLD MAGNET H-	HOLD LAMP	CIB- RELAY CONTACT a	b	HLD RELAY CONTACT c	RCY-- RELAY CONTACT d	BCY-- RELAY CONTACT e	RCTI RELAY CONTACT f	BCTI RELAY CONTACT g	RH-- RELAY	BH-- RELAY
0	0		2S	1	20	20	20	20	20	0	0
1	1		4B	3	1	1	1	1	1	1	1
2	2		6B	5	2	2	2	2	2	2	2
3	3		8B	7	3	3	3	3	3	3	3
4	4		10B	9	4	4	4	4	4	4	4
5	5		2T	1	5	5	5	5	5	5	5
6	6		4T	3	6	6	6	6	6	6	6
7	7		6T	5	7	7	7	7	7	7	7
8	8		8T	7	8	8	8	8	8	8	8
9	9		10T	9	9	9	9	9	9	9	9
			CIC- RELAY								
10	10		2B	1	10	10	10	10	10	10	10
11	11		4B	3	11	11	11	11	11	11	11
12	12		6B	5	12	12	12	12	12	12	12
13	13		8B	7	13	13	13	13	13	13	13
14	14		10B	9	14	14	14	14	14	14	14
15	15		2T	1	15	15	15	15	15	15	15
16	16		4T	3	16	16	16	16	16	16	16
17	17		6T	5	17	17	17	17	17	17	17
18	18		8T	7	18	18	18	18	18	18	18
19	19		10T	9	19	19	19	19	19	19	19

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-84

BELL TELEPHONE LABORATORIES INCORPORATED

6S

FS 6

CONNECTOR CONTROL
RESTORE TO NORMAL

TO RECORDER CKT

TO TELETYPEWRITER CKT CONTROL

TO CORRESPONDING TERMINALS OF OTHER C.I. RELAYS

TO RECORDER CKT

(PC) INT FR CKT (SEE NOTE 302)

H SEL ARC1 NBG

H SEL ARC2 NBG

H SEL ARC3 NBG

H SEL ARC4 NBG

S SEL ARC1 BDG

ISSUE 69AC

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-B5

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-25161-01-B5

FS 7
BUSY TEST

1583 SIA (74)
TO OFFICE LINK AND CONN CKT OR TO S LEAD OF PNL DIST OR OFFICE MULT
(1,22) CONN SW 5(0-9) S1 0
TO OTHER VERTICAL UNIT MULTS ON SAME SWITCH
CIA- 8B
(QH) 72 HLD 24 (QH)
(46) IDT1 3 M
(OG,OH) PT 5C5 3B,- 2 1,- B
TO CORRESPONDING TERM OF OTHER CIA-RELAYS
(4) TI 2 1 3T A
(4) P8 4T 4B 450
(4) TI 7TR 7BR B -48 S-1400 6TF 6BF P-700
AV2 C 5 6T 2206 AV2
(OJ,OK) BCR L KEY CA4 8 4 5A 5T 4 (OJ,OK) BCR 9TR, 2U 7T3- G,10 BTF,1U GBR,1L P-1000 7BR,2L S-2700 (K) B -48
(OJ,OK) BCR
(K)

TI 2 1 3T
PB 4T 4B 450
TI 7TR 7BR (YK) B -48 S-1400 6TF 6BF P-700 (YJ) (4) (9)
TII 1000 B -48

4503 RCK (PC)
(12) TC 11 12T (YM,YP,YQ) (9) (32) 2WS 1 2B (9) (29) 2W 7B 6 (YM,YP,YQ) (YM) F (YM) A
(46) 59T 37A2
(22) CONN SW S10-9. S 3 CIA- 1 2B
TO OFFICE LINK AND CONN CKT
TO OTHER VERTICAL UNIT MULTS ON SAME SWITCH
BTG -48 P 11B 12T 2500
FDC 1 2B SDC 1 2T 7 DTC 8 3T (41) (WZ) (41)

(17) MFC 3T 3B H -48 2 1 3B 1300
(17) TDI F (17) TD1 1 2B 3T 3B H -48 1300
(UT) TD2
(17) TD2 1 2T (UT) (17) TD1 1 2T F
(17) TD2 F 1 2B
(9) TD 3T 3B B -48 1300
(US) 1 2T F
(49) TII 37 1 2 8T 6B 700 (4,9) TI 2 1 3B (4YJ) B -48 (YK)
(7U) TD 3T OR 5T 3B B -48 1300
TR 3B 2 1 (UM) TA 36B1
(4,9) TII 1 2 8T 6B 700 (YK) TII 1000 -48
ST 6 7T B 3B/A3
28 1 (12) CA5 (YY)
CA2 2 3T HI 1 2T H 3 4B (46) IDT1 6
(46) IDT 3
4T HI 3 (46) SBT TB 7B1 4
DID 37B3 IDS
37C3
3T H 2 (49) TD 1 2B STP ST 2T 1 B 582

(29) CTT L KEY 4 50 (K5) (YR) (35) (32) TBT 4T 3 (28) STT 4T 3B H -48 700
(12) SP4 1 2T 3 (29) 2W 4T (9) (YM,YQ) (12) SP6 2B 1 (YM,YQ) (9)
(PT) STT 15F0
(K5) (MG) 2B 1 (32) TT (K) (YV) (Y3)
(VR) 6B 5 (32) TFT (VQ) 3B 1 2 H 3260 (32) TCT1 (VR)
(4) (9) (XV) (9) (4) (43) TII 4T 5T 5T,8B 4,4,7 (XG,XH,RY) CA3 9T 9B B -48 TR 2500
(XT) 6T TR (XT) BY TELETYPEWRITER CONTROL CKT

CPT (UM) B 10 11T
(9) CP L KEY 2A 1 (XX) (XX) (YM,YP,YQ) (XY,OH) (XY,OH)
(29) 2W 3 4B
(YM,YP,YQ) (5) TII 7T 6 (32) 2WS 6 7B

(YM,YP,YQ) (11) G- 9 10B (52) G- 5
(YM,YP,YQ) 11,52 GN SEE NOTE 202 (9) S
(26,53) GN 34F3 SEE NOTE 203

BY 2Y -48 B TI 5T 4 (4,9) (9) (4) A
RBT -48 B 3B 4T 2500 (UR)
(46) SBT 1 H

(K) (YV) (K) (OJ,OK) BCR (YW) 3A E (K) BCR L KEY (YW) B
3,- 4,8,5T,- (YW) (K) CA4 8T 7 (YY) 5B 6 (5) C2 (W) D
(K) CA4 9T 6B B -48 1000
(OJ,OK) (K) BCR 2T,- 1,5 3D 2 (K) BCR L KEY (K) BCR 7H2
(P,Q) CA4 3T OR 5T 3B B -48 2500 (J)
RP7 RP8 RP (5) (K) E 2T 1 2B 5 6T

(TC) 2T XH,RY CA3 1 (TC) 8TT TO TELETYPEWRITER CONTROL CKT

DRAWING ISSUE
36D — 2
57D RLJ LEM AMD DLS
39AR TNL AMD
40D SGJ LJY AMD TLC
41D CSL AMD LCS
43AC LJY AMD XMS
44AR LEM AMD JWS PEJ AMD
47D AEL WL AMD
48A AEL WL AMD
49D AEL WL AMD
52D PVS WC AMD
53D PVS WL AMD
56A JEK LJY AMD
58D
61D

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)
BELL TELEPHONE LABORATORIES INCORPORATED
SD-25161-01-B6
6S

SD-25161-01-B6

FS 8

BUSY AND TROUBLE TIMING

TA TEST SWITCH			
FUNCTION	OPT "VM" POS NOR SEQ	OPT "VN" POS NOR SEQ	OPT "VN" POS XMSN TESTING
NORMAL START BUSY TIME	1	1	1
BUSY TIMING	2-9	2-9	2-9
BUSY TIME ALARM	10	10	10
PASS BY	11-16	11,12	11,12
START TBL TIMING	17	13	13
TROUBLE TIMING	18,19	14,15	14-19
TBL TIME ALARM	20	16	20
PASS BY	21,22	17-22	21,22

DRAWING ISSUE	
36D	
37D	
42B	
45D	
47D	
49D	
52D	
55D	
58D	
60D	
61D	

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)

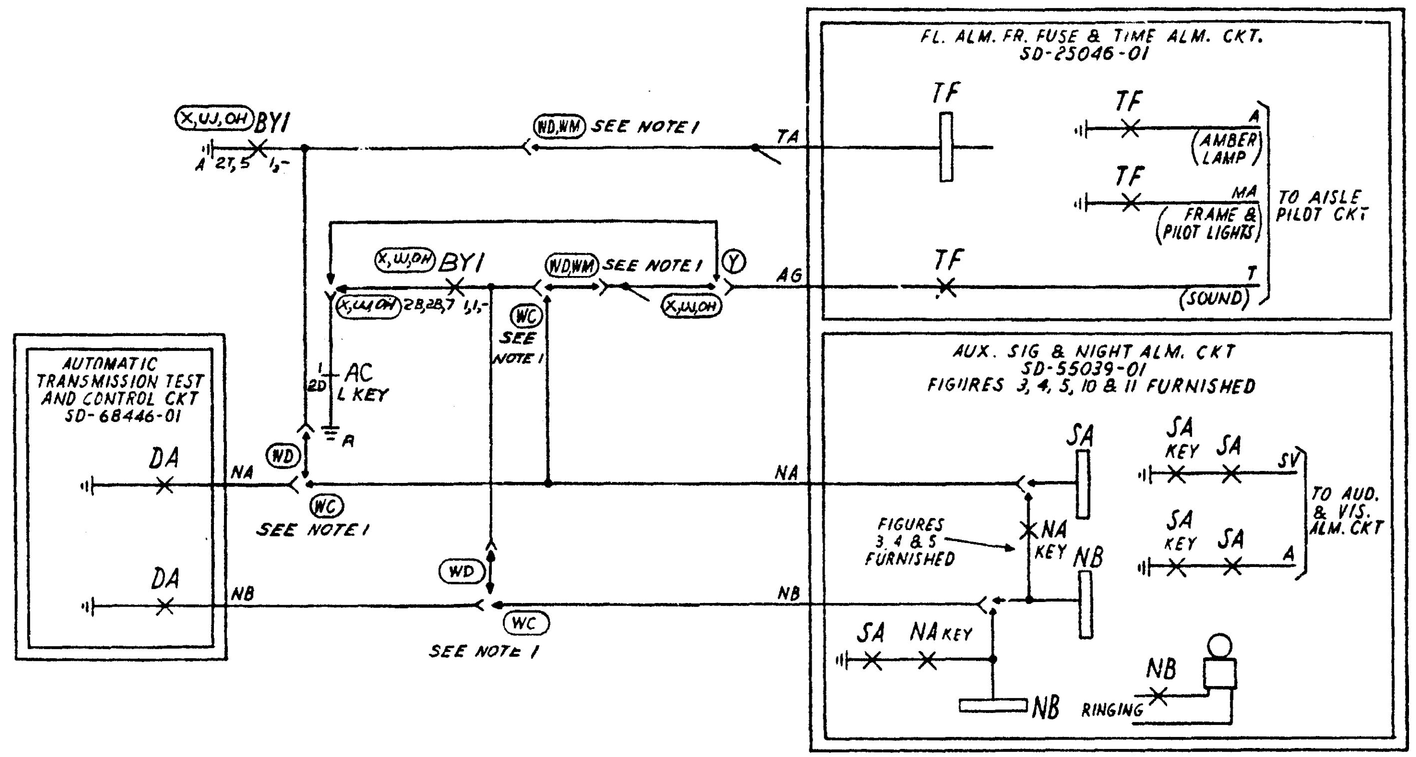
BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-87

SD-25161-01-87

FS 9

FLOOR AND NIGHT ALARM



SHEET NOTE:

1. (WC) WHEN TEST CKT IS LOCATED IN TOLL TEST BOARD AREA.
   (WD) WHEN TEST CKT IS LOCATED IN MAINTENANCE CENTER.

ISSUE 68B

AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-B8A

6S

SD-25161-01-B8A

PART OF FS 10

TRUNK GROUPING FOR TEST PURPOSES

DRAWING ISSUE 600

SD-25161-01-B8B

SEE NOTES 202 & 203

26 DM- 10T 9 — 53 DM- 10 — WP — 26,53 TG — 38,60,77 ATY — 8C/DO ATY 77

38 — WG — TST GR B L KEY 2 3A — TST GR A L KEY 3B 2 — 38 — WG

8C/DO BTY 77 — 38,60,77 BTY — 60 — 38

TST GR 1-4 (A,C,E,G) L KEY 4 5B — TST GR 1-4 (B,D,F,H) L KEY 4 5D — 60 — 38 — PT — PT 48 — PT 10G7

TST GR 1 A L KEY 2 1 3B — 60 — SV

TST GR 1 B L KEY 4 3 5A — 60 — SV

60,77 CTY — 60 — TST GR 2 C L KEY 2 1 3B — 77 CTY 8C/DO — 60 — SV

60,77 DTY — 60 — TST GR 2 D L KEY 4 3 5A — 77 DTY 8C/DO — 60 — SV

60,77 ETY — 60 — TST GR 3 E L KEY 2 1 3B — 77 ETY 8C/DO — 60 — SV

60,77 FTY — 60 — TST GR 3 F L KEY 4 3 5A — 77 FTY 8C/EO — 60 — SV

60,77 GTY — 60 — TST GR 4 G L KEY 2 1 3B — 77 GTY 8C/EO — 60 — SV

11 G- 10T 9 — 52 G- 10 — WP — 11,52 TG — 60,77 HTY — 60 — 3 4 5A — TST GR 4 H L KEY — 60 — SV — 77 HTY 8C/EO

GR A (TDTI,2) L KEY 2 3A — TYS 6T 6B 700 N 48

GR A (TDTI,2) L KEY 2 1 3B — 1 2 3B — GR B (TDTI,2) L KEY 3A — GR B (TDTI,2) L KEY 2

3T 2 TYS — 3B 2 TYS — WG — 61 TY1 9T 6B 1.5kΩ N 48

GR 1 PRT (TDT2) L KEY 2 3A — SV — PG — TY1 8C/GO

3A GR 2 PRT (TDT2) L KEY 2

GR 1 PRT (TDTI) L KEY 2 3B — WG — 61 TY2 9T 6B 1.5kΩ N 48 — SV — PG — TY2 8C/HO

3B GR 2 PRT (TDTI) L KEY 2

TST GR 1 B L KEY 1 2A

TST GR 1 A L KEY 1 2C

TST GR 2 D L KEY 1 2A

TST GR 2 C L KEY 1 2C

TST GR 3 F L KEY 1 2A

TST GR 3 E L KEY 1 2C

TST GR 4 H L KEY 1 2A

TST GR 4 G L KEY 1 2C

B

AUTOMATIC TRANSMISSION TEST AND CONTROL CKT

K 61 TY1 2B 1 — WG,SV — DV1 — DV1A 48 — REGISTERS 48 — PH — DR1 8C/A0

K 61 TY2 2B 1 — WG,SV — DV2 — DV2A 48 — REGISTERS 48 — PJ — DR2 8C/A9

ISSUE 67B

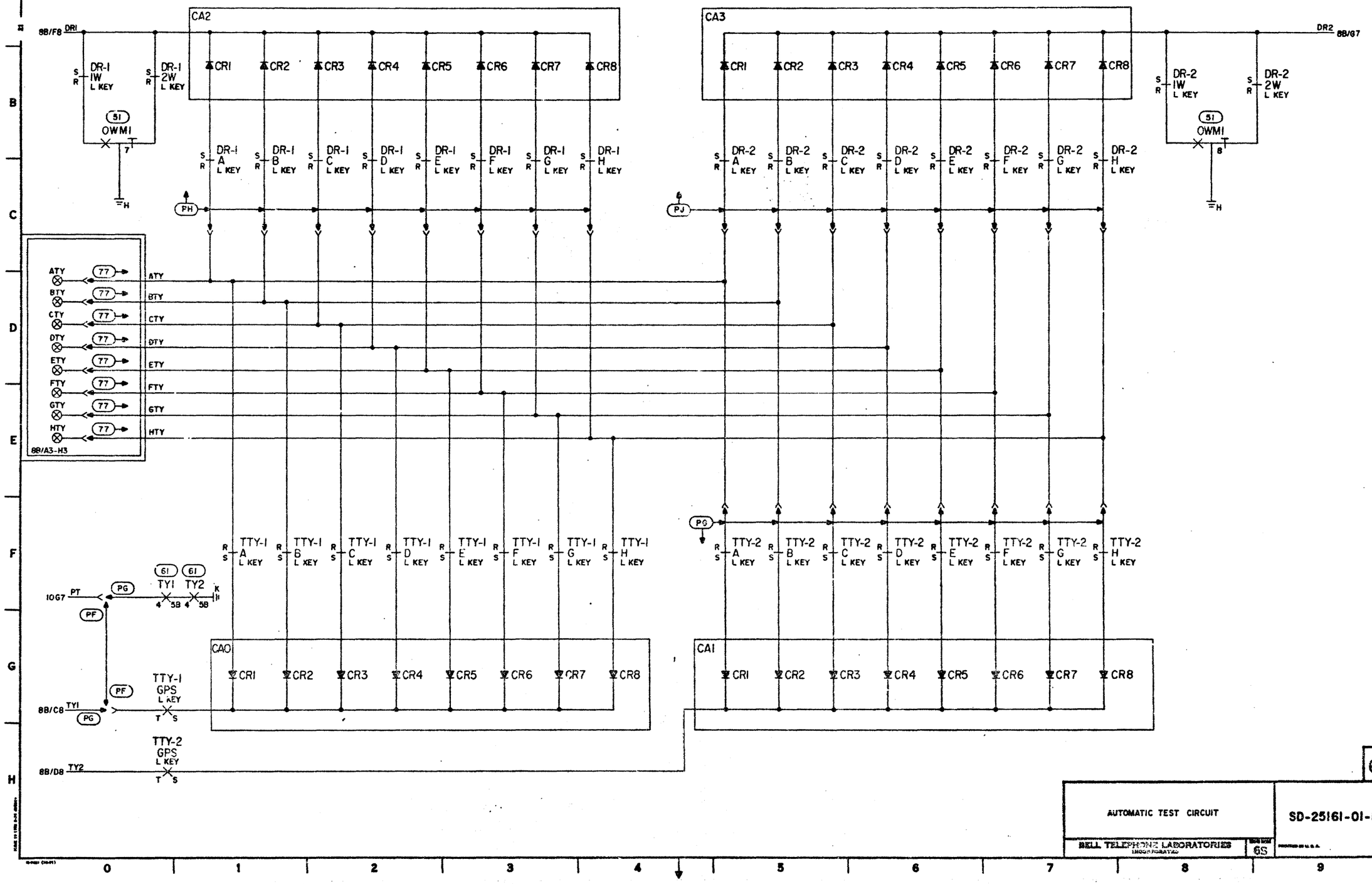
AUTOMATIC TEST CIRCUIT (2) SD-25161-01-B8B

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-25161-01-B8B

PART OF FS 10

TRUNK GROUPING FOR TEST PURPOSES

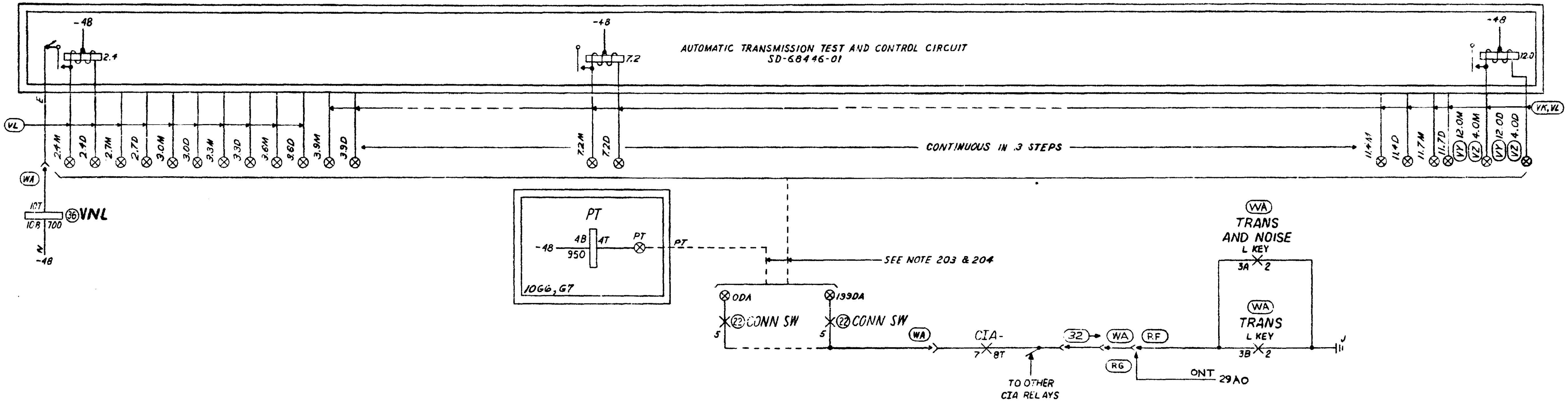


ISSUE 67B

AUTOMATIC TEST CIRCUIT	SD-25161-01-B&C
BELL TELEPHONE LABORATORIES INCORPORATED	6S

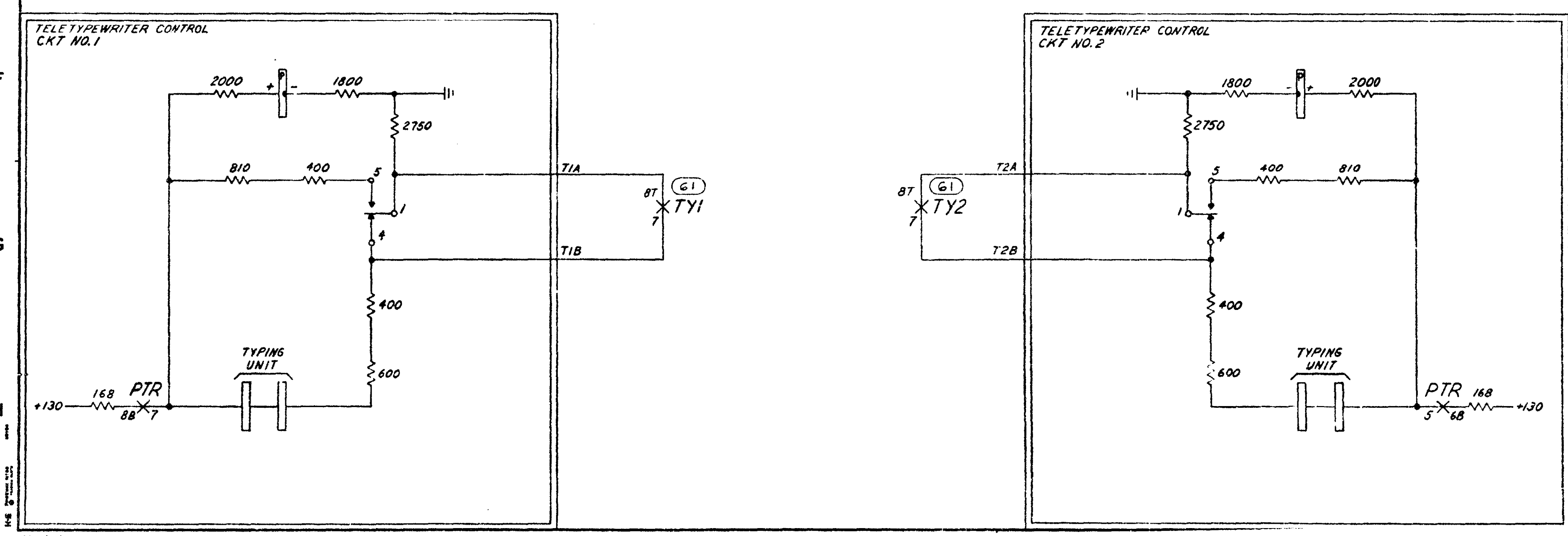
FS 11

TRANSMISSION LIMITS



FS 12

ARRANGEMENT FOR TWO TELETYPEWRITERS



DRAWING ISSUE
36D
41D
45D
55D
57A
58D
61D

ISSUE 63B

AUTOMATIC TEST CIRCUIT

SD-25161-01-B9

BELL TELEPHONE LABORATORIES
INCORPORATED

SD-25161-01-B9

PART OF FS 13
CLASS RELAYS

RP CLASS

(54) STL 13T 13B M -48 700
(54) STLA 13T 13B M -48 700
(54) STL XH,RY CA3 TD 1,5 2T, 6T TD
(VH) TN1 10TF 10BF P-700 (VE) TT2 9 N 10T -48
(VE) TT2 11TR 11BR S-700 2 1 3B
(VH) TN2 10TF 10BF P-700
(VE) TT2 11TR 11BR S-700 7 6 8T
(VH) TN3 10TF 10BF P-700
(VE) TT2 11TR 11BR S-700 4 3 5T
(5) NTL 6T 4B F -48 2500
TL
A (4,11) G- 1 2B
A (52) G- 1
BL 6 7B
BCI 5B 4 D
(64) OSTA 12BF 12TF P-700 13BR 13TR S-700 E -48
10B 9 BCI
10B 9 BC (64) OST.1 7
(64) OST 10 11B
(64) OST.2 7
(64) OST 12BF 12TF P-700 13BR 13TR S-700
CROSS CONN PER NOTE 202
OST ROS
(64) 27 RI 7TR 6BR B -48 S-1750
RI
A (4,11) G- 3 4B TFXB
A (52) G- 2
XB
TF 7T,9T 6B,8B F -48 2500
SX ESS U L F -48 2500
(SEE NOTE 202)
(YB,XF) (5) XB 9 10T (XF) S2 16H0
(YB) (5) C2 2T 1 C 34A9
(YA)
(5) XB 11T 11B B -48 1500
SX ESS 10 D

(63) CRA IL 2L W -48 2450
(63) CRB 1U 2U W -48 2450
(63) CRC IL 2L W -48 2450
A (26) DM- 2T 1 SP
A (53) DM- 6 3484

45A2 CIA 74
(49) IDT L KEY (22) CIA- 4B 3 1
4 3 5D IDT1 37D3
B (RL) RK
N (QS) QP
T
CONN SW S(0-9) 1 3 22
CONN SW S(0-9) 4
TO OTHER VERT UNITS MULT ON SAME SW
SEE NOTE 202
OD-1990
SEE NOTE 206

(0-99)
RE GA(0-99) RD RE GB(0-99)
GX(0-99) RE GY(0-99) RE
(68) ADM-- 1U,1L 2U,2L 640 3,10
(SEE NOTE 203)
TO OTHER APP FIG. 68
(67) FIV U L R -48 500 RP R -48
(52) G-- U L B -48 2500
(4,11) G-- 11T 11B B -48 2500
(26) DM-- 11T 11B B -48 2500
(53) DM-- U L B -48 2500
(8) RI- 6TF 5BF P-850 7TR 6BR B -48 S-1750
(SEE NOTE 105 AND 206)
RI RI-1 5T 4 A A1 48 3

(RR) RCPT 2 RCP (RR) 1U 1L 1175 2U 2L 1075 B -48
(SEE NOTE 204)
RCP
(RR) (UM) CPT (RH) 12T 11B B -48 2500
PASS TEST
RCP VT VT 4T 3B 700 B -48
(RH) (RS) 5 (RS)
(64) OSTA OST 1 2B 10 11T
NTL 5T 4 H
(64) 54 STLA 6 7T H
(62) ANIC 6 7T H
(9) CP L KEY 4 5A
(YM,YP,YQ) (XX) A
(UM) CPT 5T 4 B
CP OD-1990 A6
(4) CP L KEY 4D 3 3
(72) RTP 2.5kΩ
XX
(OG,OH) PT 4T,1L 4B,2L B 48 950,960
(51) OWM KEY A 2A 1
OWM TTI ST 2902
(30) 2WS 7 8T XX M 3489
(29) 2W 9T 8
ODA-199DA 9C4
PT PT PT 8B/B6, 8C/F0, 9C4
(WA) TTI (40) STFI 1 2T 8T 7 40 H

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2) SD-25161-01-B10

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-25161-01-B10

DRAWING ISSUE
36D
37D
41D
45D
47D
48A
52D
56A
58D
60D
61D

ISSUE 69AC

AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

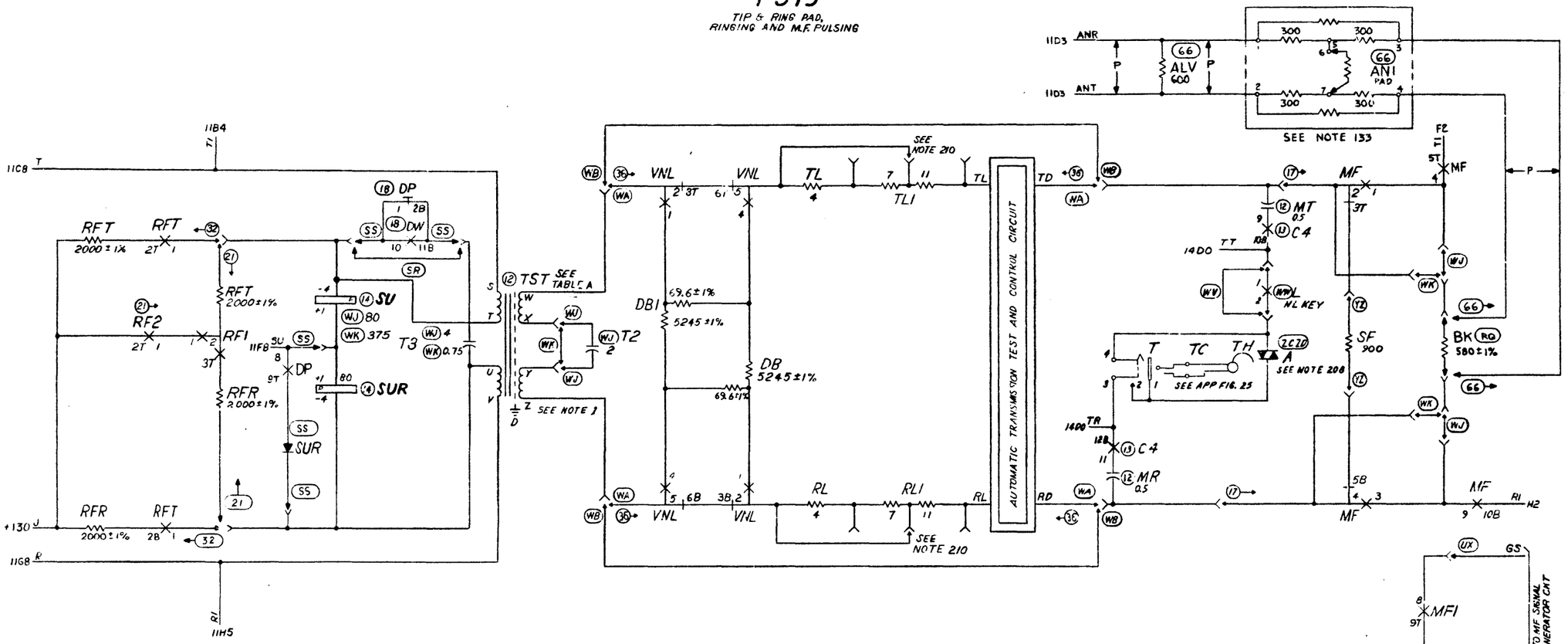
② SD-25161-01-B11

6S

SD-25161-01-B11

FS15

TIP & RING PAD, RINGING AND M.F. PULSING



SHEET NOTE:

1. IMPEDANCE FROM W, X, Y, Z WINDINGS OF TST COIL TO MF CURRENT SUPPLY IS 600Ω.

TABLE A

TRUNK IMPEDANCE AT 1000~	CODE	OPTION APP	OPTION WIR	IMP RATIO 2-1, 6-5 TO 4-3, 8-7	WDG RES 2-1 OR 6-5	WDG RES 4-3 OR 8-7	TERMINAL CONNECTIONS S	T	U	V	W	X	Y	Z
600	94H	WJ		1:1	10Ω	13.5Ω	4	3	8	7	2	1	6	5
900	120D	WK		1.5:1	12Ω	5.5Ω	2	1	6	5	4	3	8	7

DRAWING ISSUE		
36D	ESS	T.E.B.
37D	ESS	CB
47D	ESS	CB
52D	ESS	CB
60D		

ISSUE 65A

AUTOMATIC TEST CIRCUIT (2)

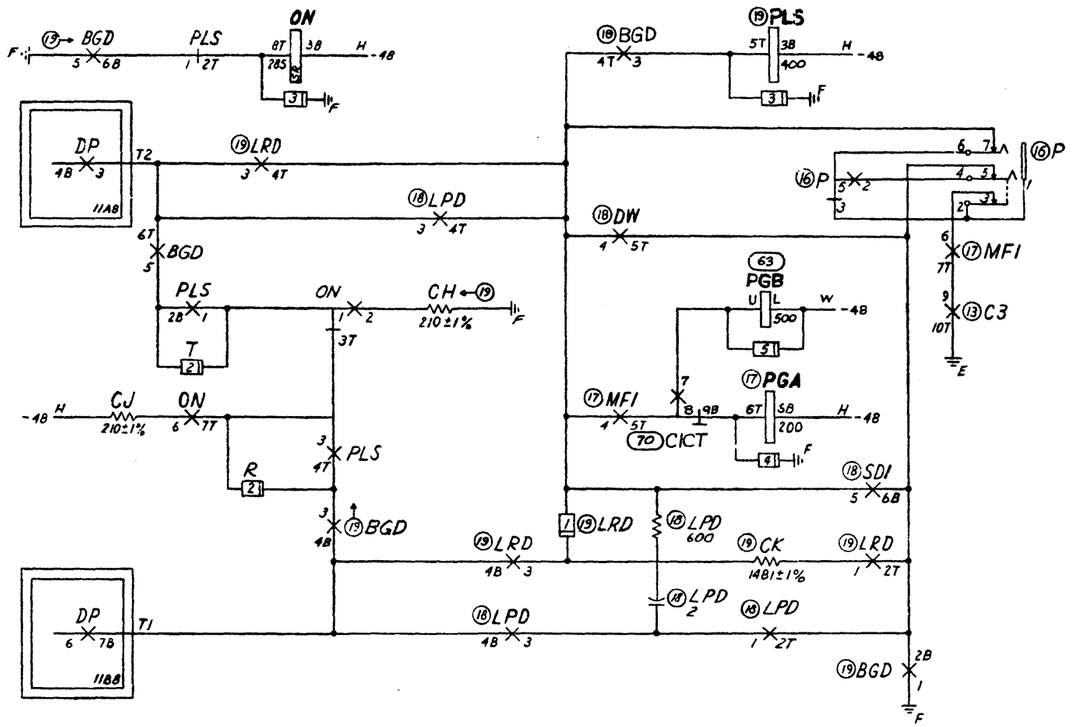
BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-812

SD-25161-01-812

FS 16

TIP & RING DIAL PULSING



SD-25161-01-813

DRAWING ISSUE 63D

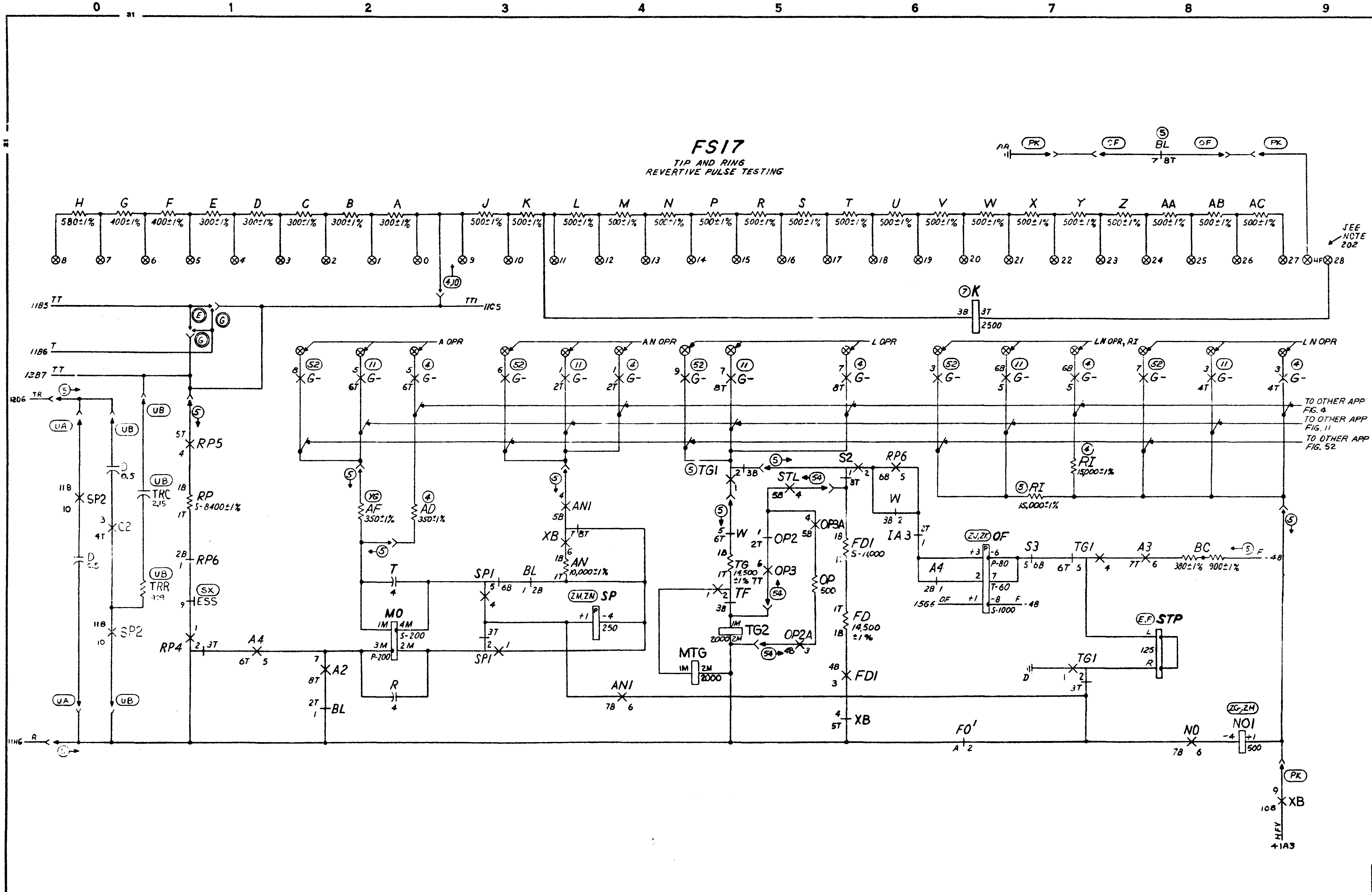
ISSUE 63B

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-813

BELL TELEPHONE LABORATORIES INCORPORATED

6S



DRAWING ISSUE	
36D	
37D	
41D	
52D	
53D	
58D	

ISSUE 69AC

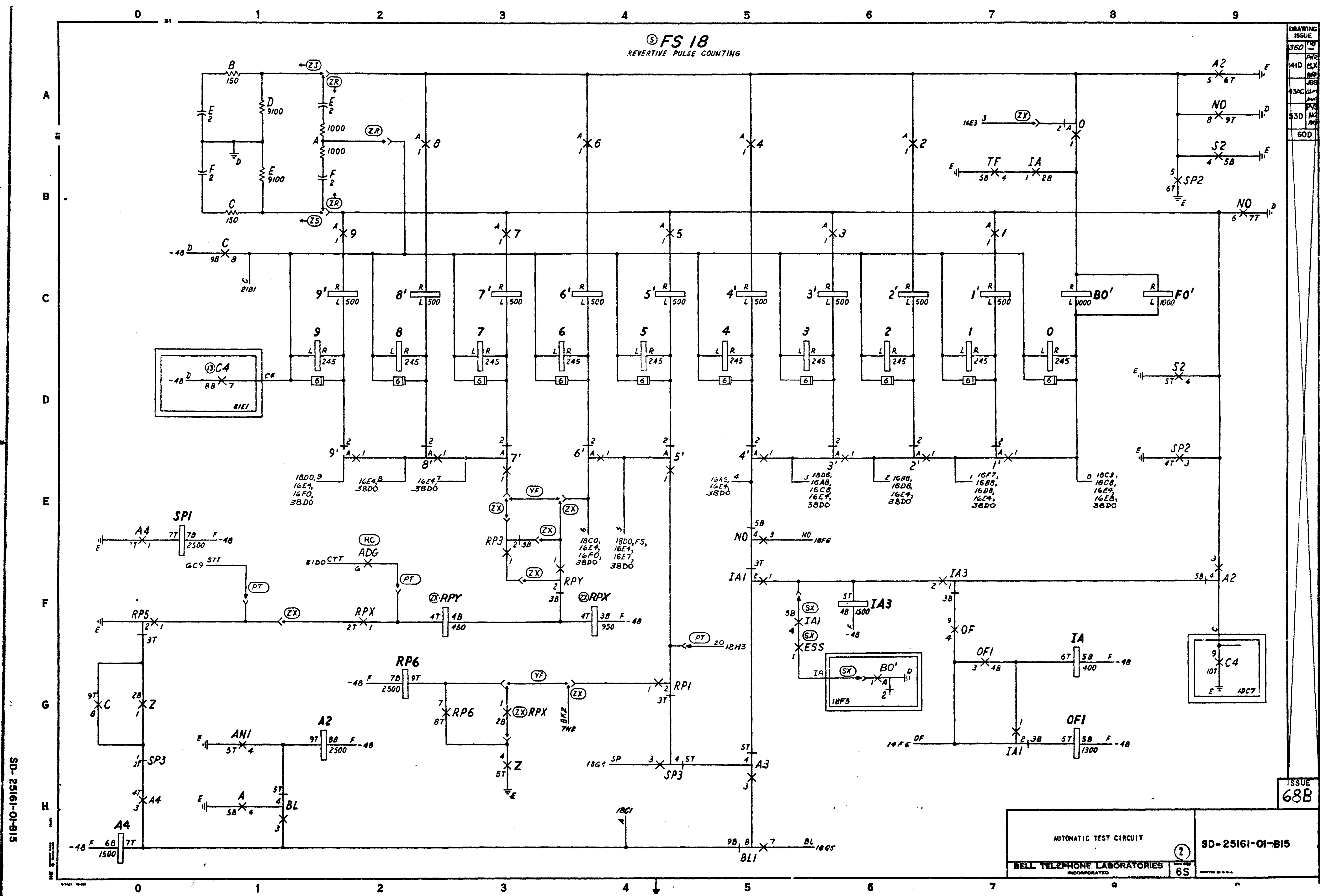
AUTOMATIC TEST CIRCUIT

SD-25161-01-B14

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-B14



FS 18
REVERTIVE PULSE COUNTING
AUTOMATIC TEST CIRCUIT
BELL TELEPHONE LABORATORIES INCORPORATED
SD-25161-01-B15
ISSUE 68B
DRAWING ISSUE
36D
41D
43AC
53D
60D
SPI
RP5
RPX
RPY
RP3
RP6
RP1
SP3
A4
A2
AN1
BL
BL1
C4
IA
IA1
IA3
OF
OF1
ESS
BO'
FO'
NO
S2
SP2
TF
6S
SD-25161-01-B15

FS 19
REVERTIVE PULSE
REPEAT TESTS

FS 20
REVERTIVE SELECTIONS

TEST SWITCH	
POS. 1	NOR
2	TG TEST
3	ING BR
4	PASS
5	ING GR
6	PASS
7	FIN BR
8	PASS
9	FIN TENS
10	PASS
11	FIN UNITS
12	CHECK OF PRE OPER L REL
13	L REL NON OPER TEST
14	L REL OPER ING ADV
15	A REL NON OPER TEST
16	A REL OPER
17	PASS
18	SUP TEST
19	TG TEST
20	NR AND ADV
21-22	RELEASE

DRAWING ISSUE	
36D	
37D	
41D	
53D	
58D	
61D	

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-B16

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-B16

FS21

OFF NORMAL BUSY LINE AND BRUSH CONTINUITY TESTS

DRAWING ISSUE	
36D	
37D	
41D	
47D	
49D	
55D	
57A	FK

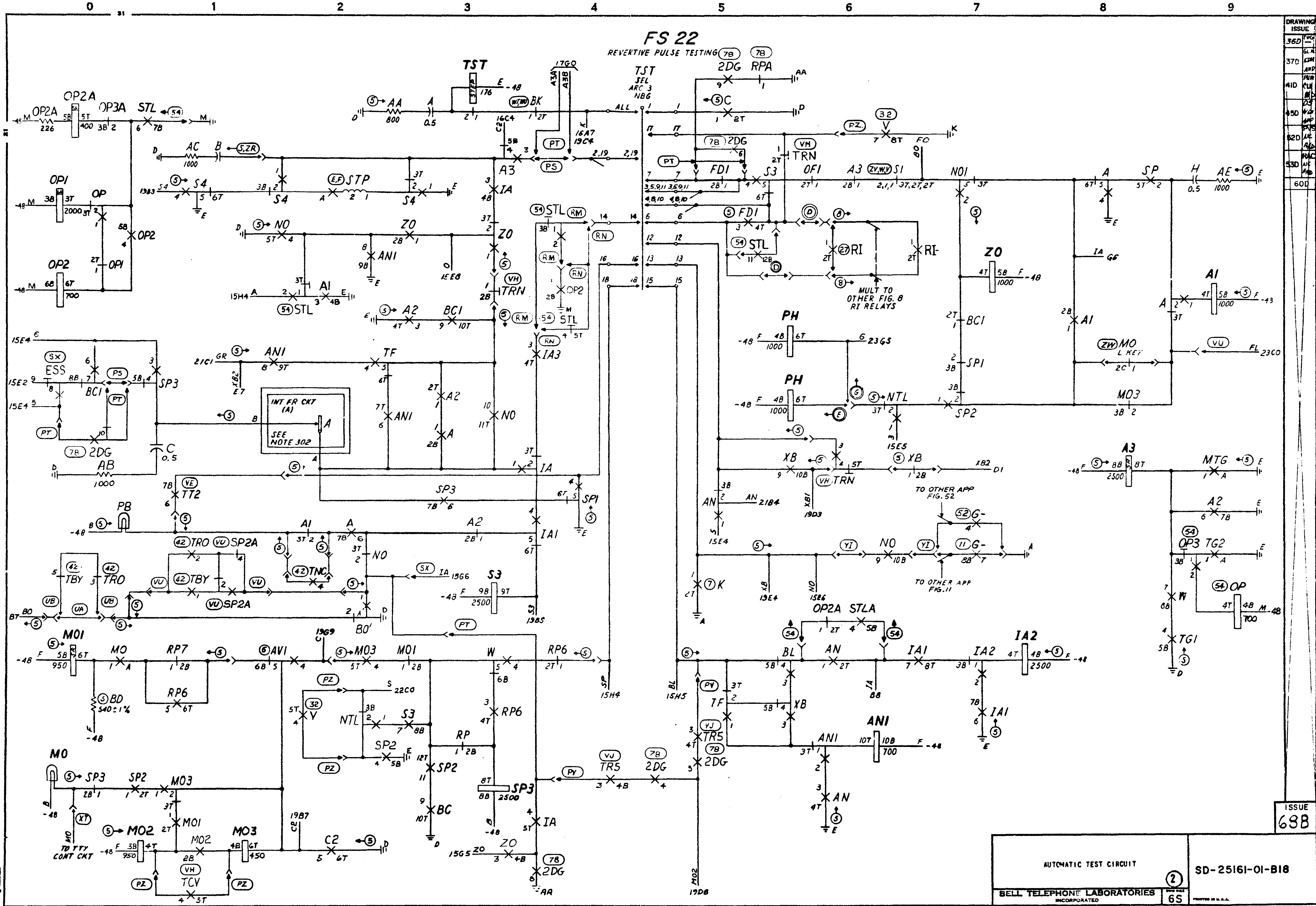
ISSUE
68B

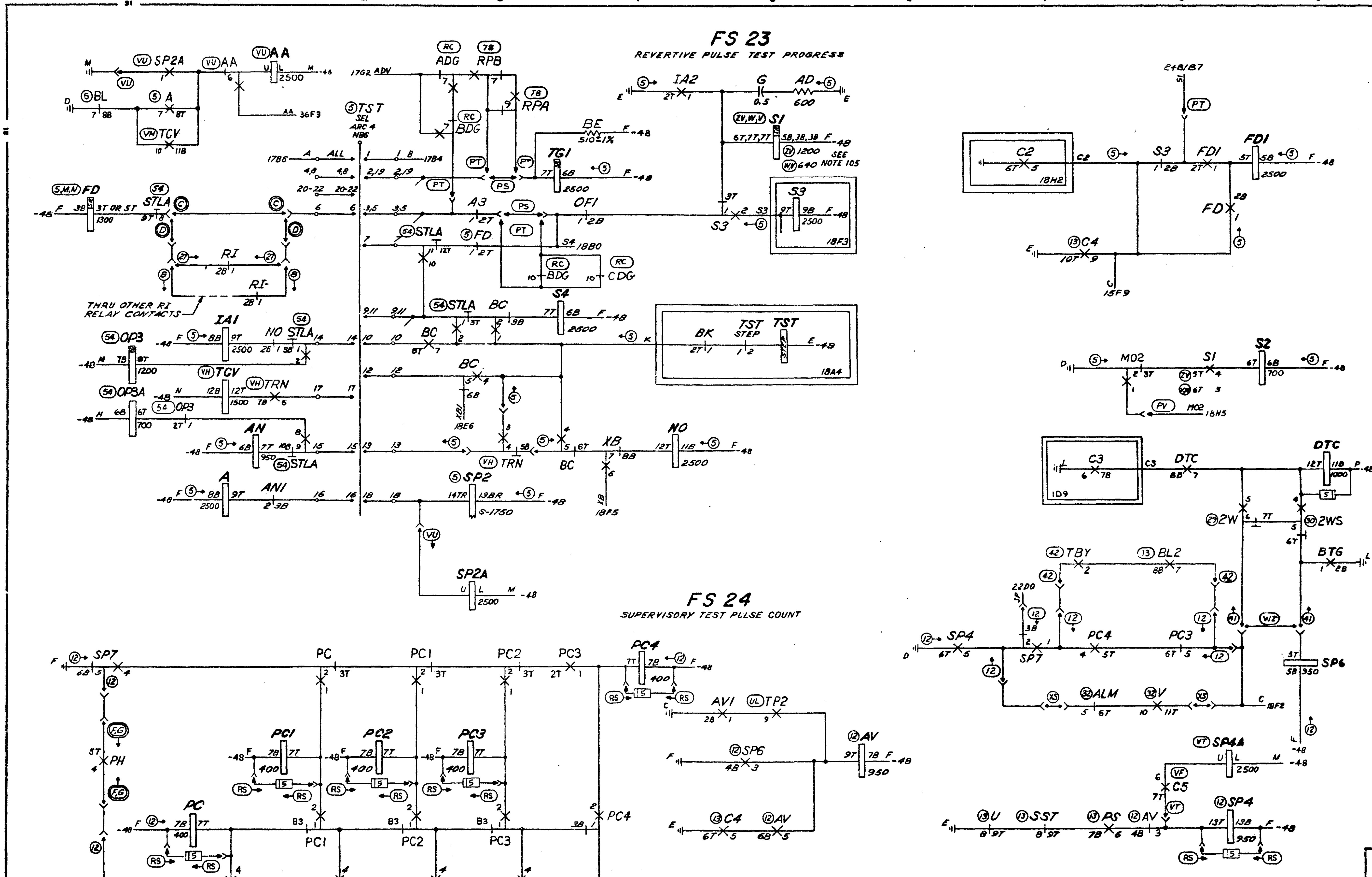
AUTOMATIC TEST CIRCUIT
②

SD-25161-01-B17

BELL TELEPHONE LABORATORIES
INCORPORATED

6S


FS 22
REVERTIVE PULSE TESTING
TST
TST SEL ARC 3 NBG
2DG
RPA
OP2A
OP3A
STL
OP1
OP
OP2
S4
STP
A3
IA
ZO
NO
AN1
A1
STL
A2
BC1
TRN
ESS
BC1
SP3
INT FR CKT (A)
SEE NOTE 302
TF
AB
C 0.5
PB
TT2
TRO
SP2A
TBY
TNC
IA1
S3
FD1
OF1
S1
NO1
SP
AE
RI
MULT TO OTHER FIG. 8 RI RELAYS
PH
NTL
SP1
SP2
MO3
MO
L KEY
XB
TO OTHER APP FIG. 52
G-
TO OTHER APP FIG. 11
MTG
TG2
OP3
TG1
M01
RP7
AV1
RP6
BD 540±1%
W
V
NTL
RP
BC
MO
MO2
MO3
MO1
TCV
C2
TO TTY CONT CKT
OP2A
STLA
BL
AN
IA2
TR5
K
AUTOMATIC TEST CIRCUIT
SD-25161-01-B18
BELL TELEPHONE LABORATORIES INCORPORATED
6S
ISSUE 68B
DRAWING ISSUE
36D
37D
41D
45D
52D
53D
60D



ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-B19

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-B19

FS 25
PROGRESS LAMPS

TO TELETYPEWRITER CONTROL CIRCUIT

TO TELETYPEWRITER CONTROL CIRCUIT

AUTOMATIC TEST CIRCUIT (2)

BELL TELEPHONE LABORATORIES INCORPORATED

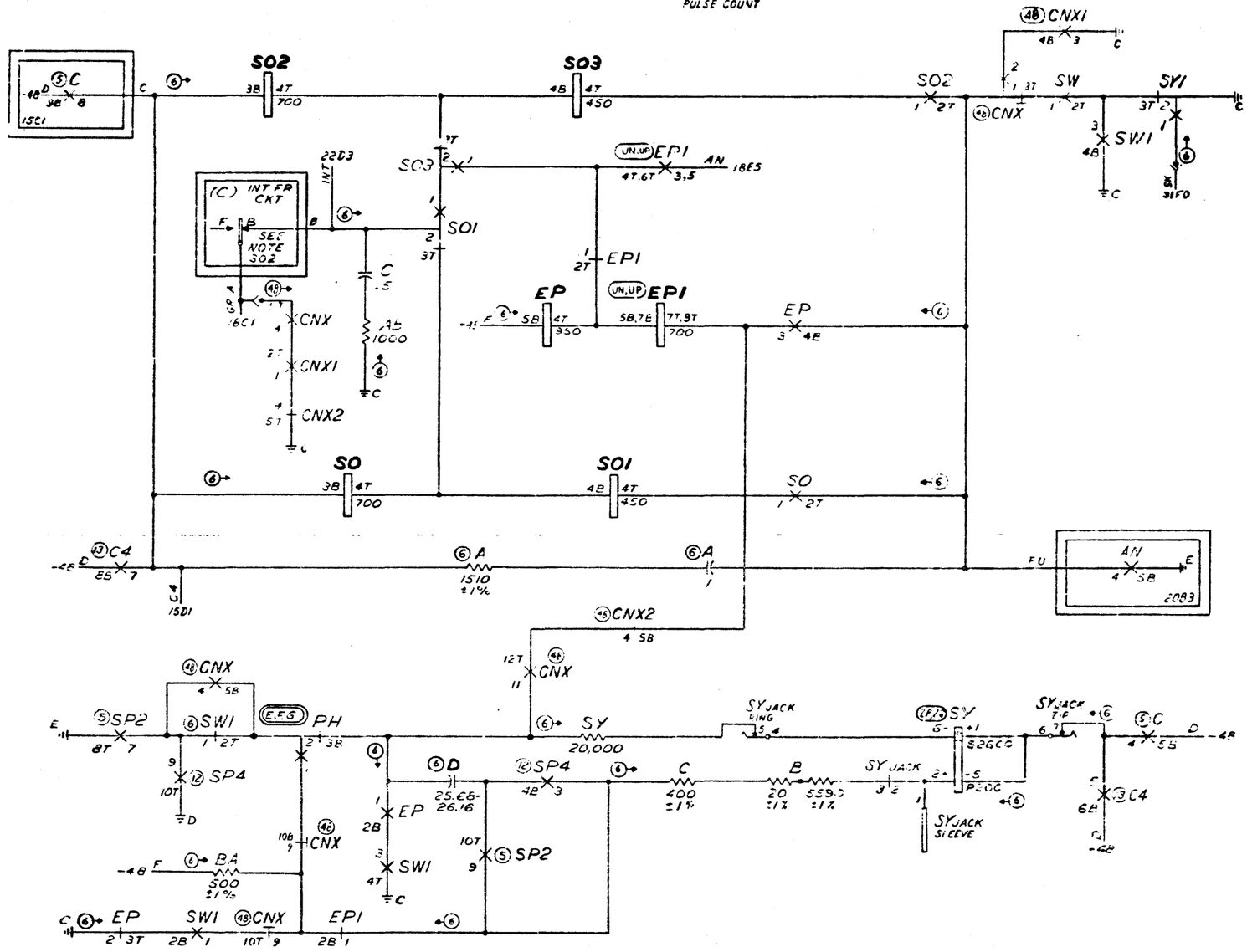
SD-25161-01-B20

ISSUE 68B

SD-25161-01-B20

FS26

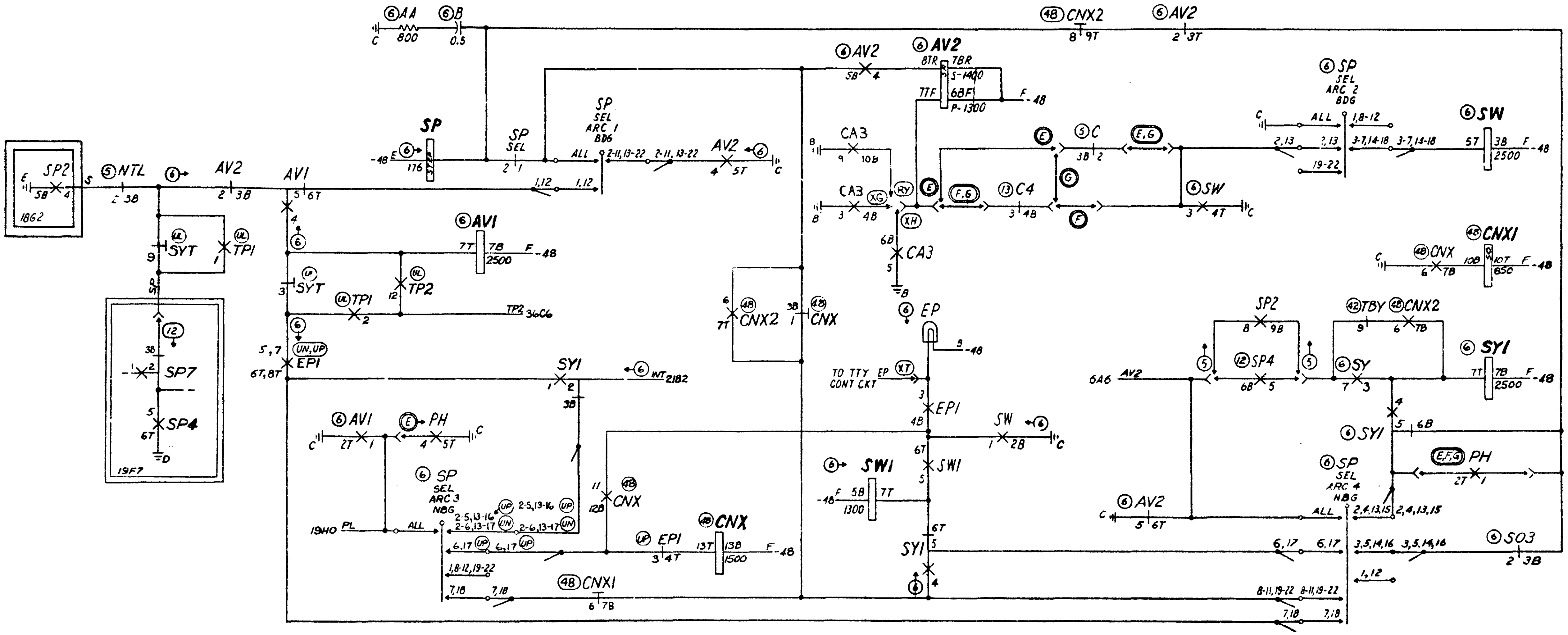
SYNCHRONIZED TEST PULSE COUNT

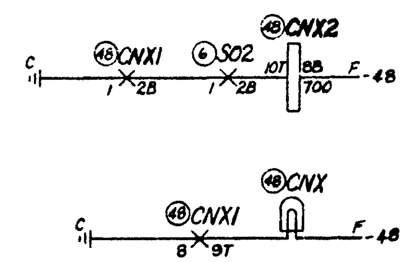


CROSSBAR SYSTEMS	48
NO. 1 CR TANDEM OFFICE AUTOMATIC TEST CIRCUIT (2)	SD-25161-01-821
BELL TELEPHONE LABORATORIES INCORPORATED	6S

FS 27

SUPERVISORY RELAY TEST PROGRESS





SP SEL	
POSITION	LOCATION
1 & 12	NORMAL
2 & 13	SYNC, AWAIT SP PULSES
3 & 14	SOAK
4 & 15	SYNC, AWAIT SP PULSES
5 & 16	OPER TWO PULSES
6 & 17	CHECK FOR ADDITIONAL PULSES
7 & 18	AWAIT AV1 RELAY
8 TO 11 & 19 TO 22	PASS BY

DRAWING ISSUE
36D
47D
48A
57A

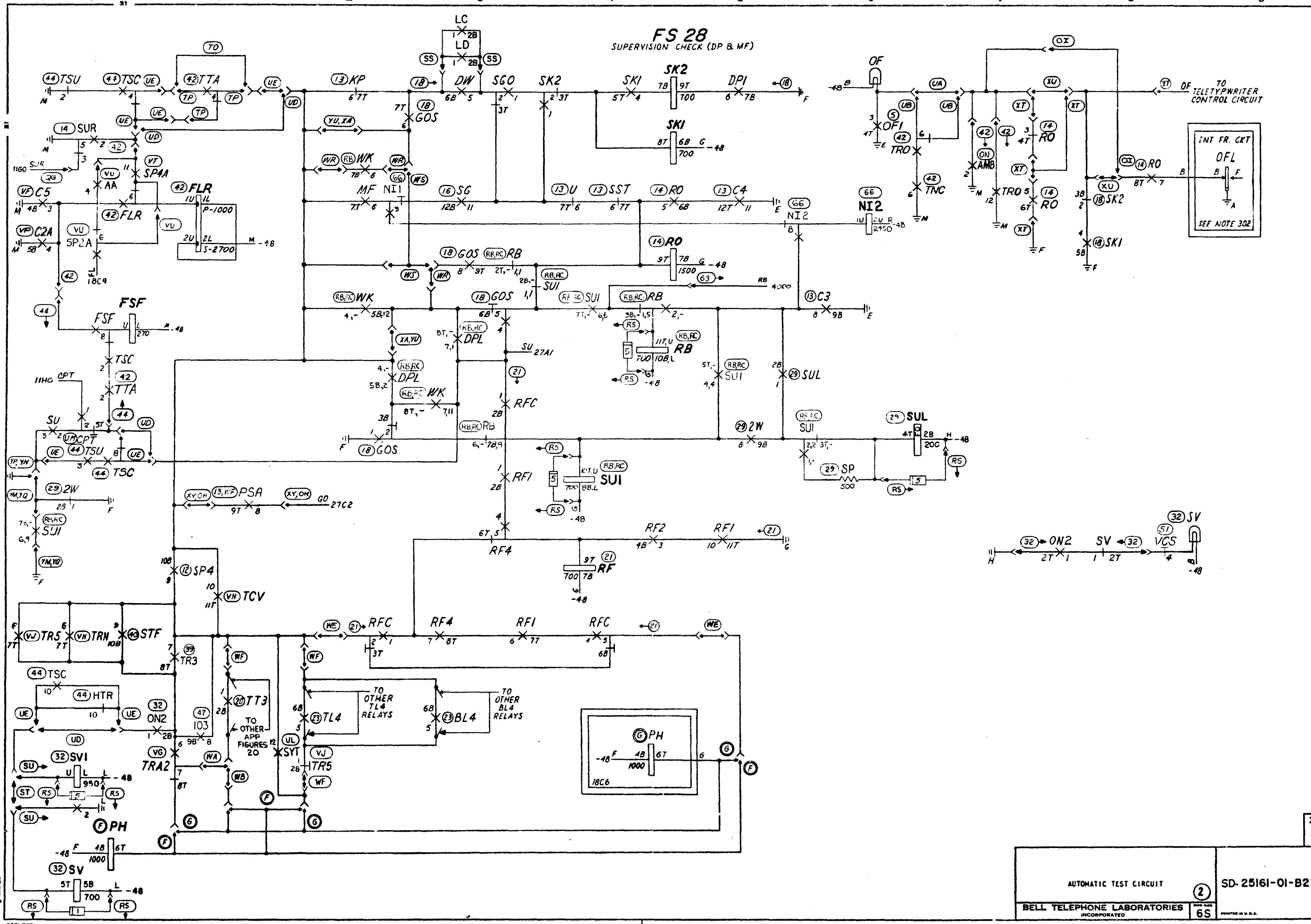
ISSUE 63B

AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-B22

SD-25161-01-B22



DRAWING ISSUE
36D
37D
41D
45D
47D
50A
52D
56A
58D
60D

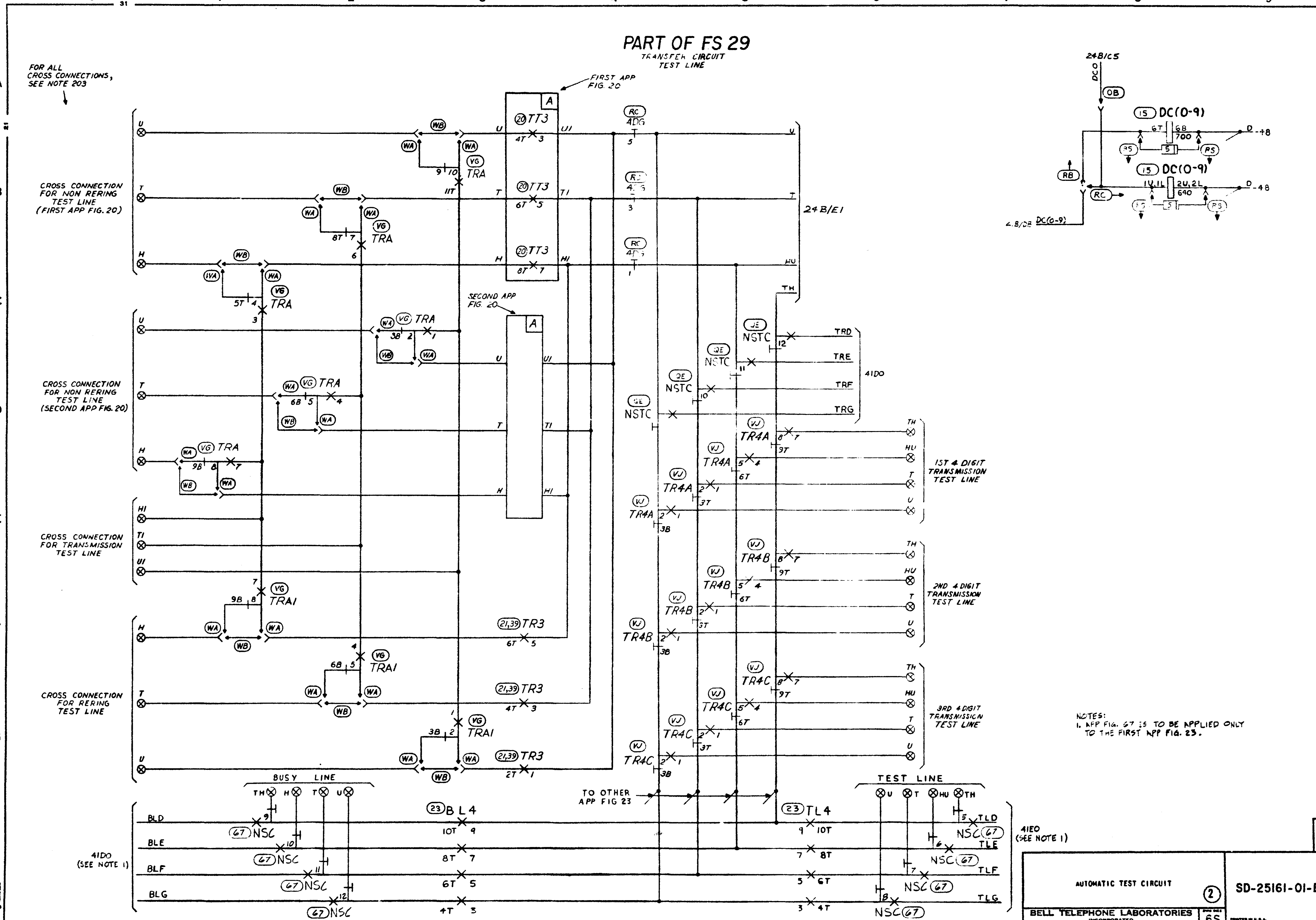
ISSUE 68B

AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-B23

6S



PART OF FS 29
TRANSFER CIRCUIT TEST LINE
FOR ALL CROSS CONNECTIONS, SEE NOTE 203
FIRST APP FIG. 20
SECOND APP FIG. 20
CROSS CONNECTION FOR NON RERING TEST LINE (FIRST APP FIG. 20)
CROSS CONNECTION FOR NON RERING TEST LINE (SECOND APP FIG. 20)
CROSS CONNECTION FOR TRANSMISSION TEST LINE
CROSS CONNECTION FOR RERING TEST LINE
24B/E1
24B/C5
41DO
1ST 4 DIGIT TRANSMISSION TEST LINE
2ND 4 DIGIT TRANSMISSION TEST LINE
3RD 4 DIGIT TRANSMISSION TEST LINE
BUSY LINE
TEST LINE
TO OTHER APP FIG 23
41DO (SEE NOTE 1)
41EO (SEE NOTE 1)
NOTES:
1. APP FIG. 67 IS TO BE APPLIED ONLY TO THE FIRST APP FIG. 23.

DRAWING ISSUE	
36D	
37D	
40D	
41D	
46AC	

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-B24A

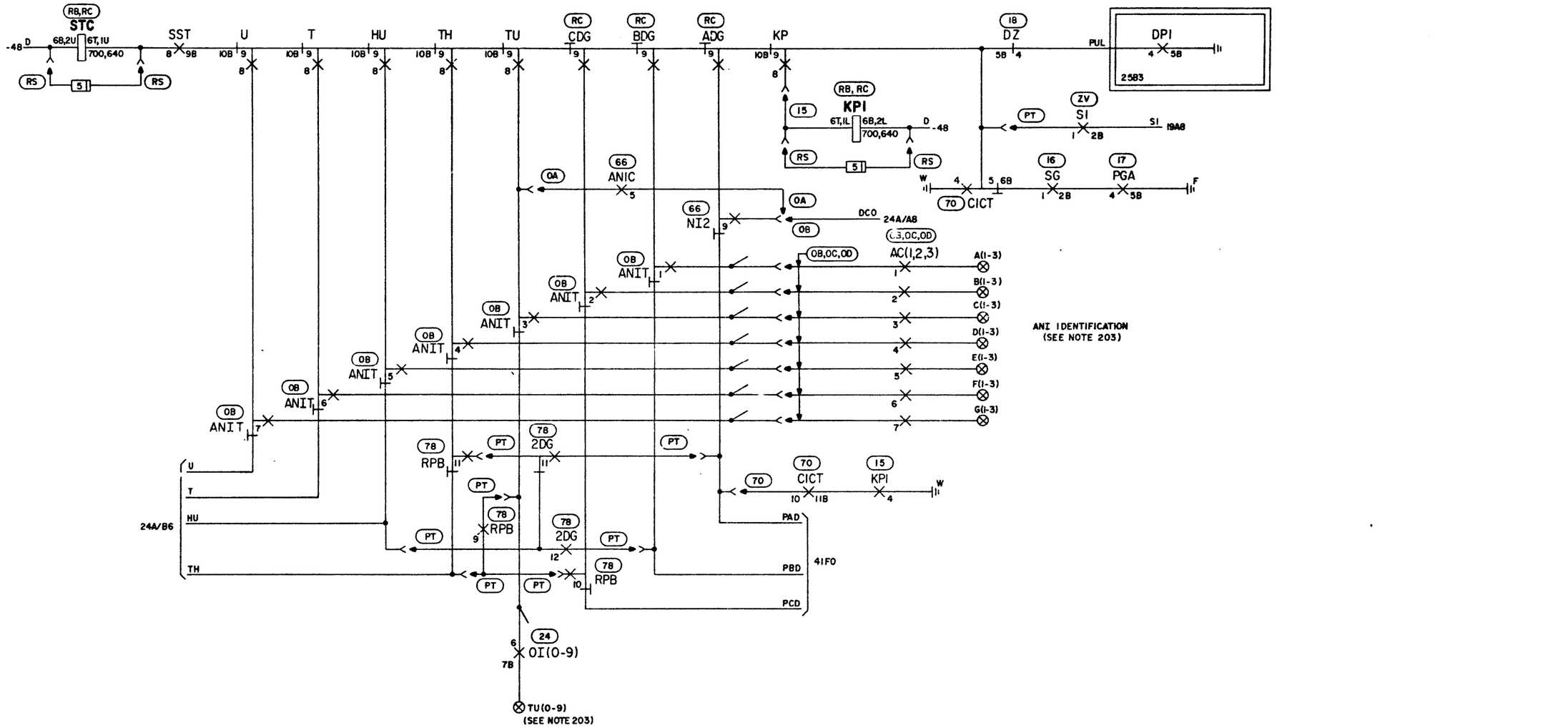
BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-B24A

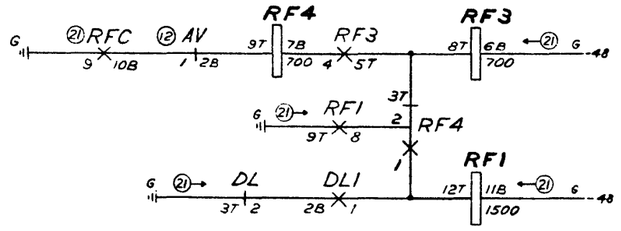
PART OF FS 29

TRANSFER CIRCUIT
TEST LINE

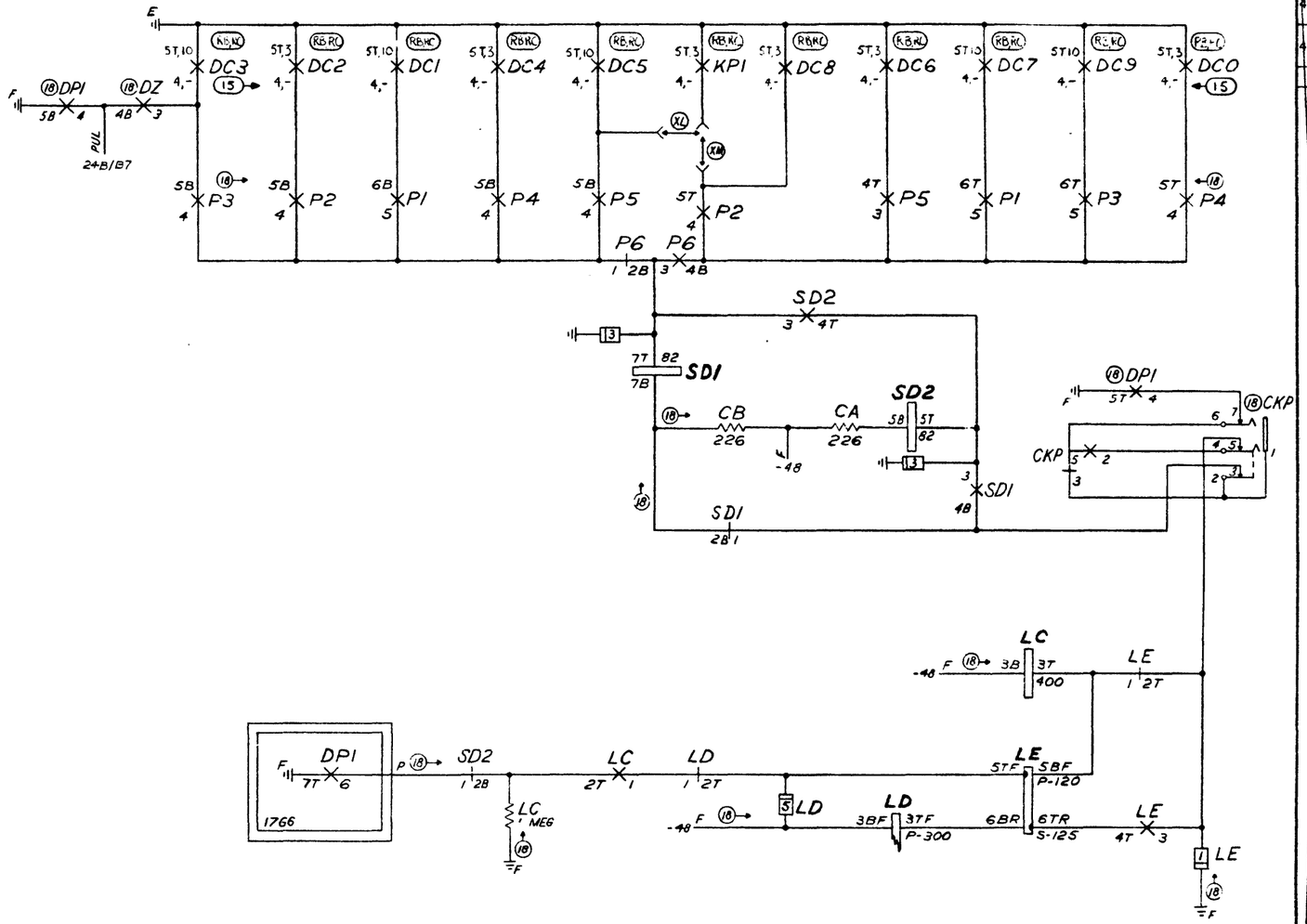


AUTOMATIC TEST CIRCUIT	DWG SIZE 6S	ISSUE 68B
BELL LABORATORIES	SD-25161-01-	824B

FS 31
(MD) RERING



FS 32
DIAL PULSE DIGIT VALUE



DRAWING ISSUE	
36D	
37D	
41D	
47D	
58D	

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-B25

SD-25161-01-B25

FS 33
DIGIT STEERING AND CONTROL

TO TELETYPEWRITER CONTROL CKT

SEE NOTE 102

LAST | INTER | FIRST

TO OTHER TT3 RELAYS

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-B26

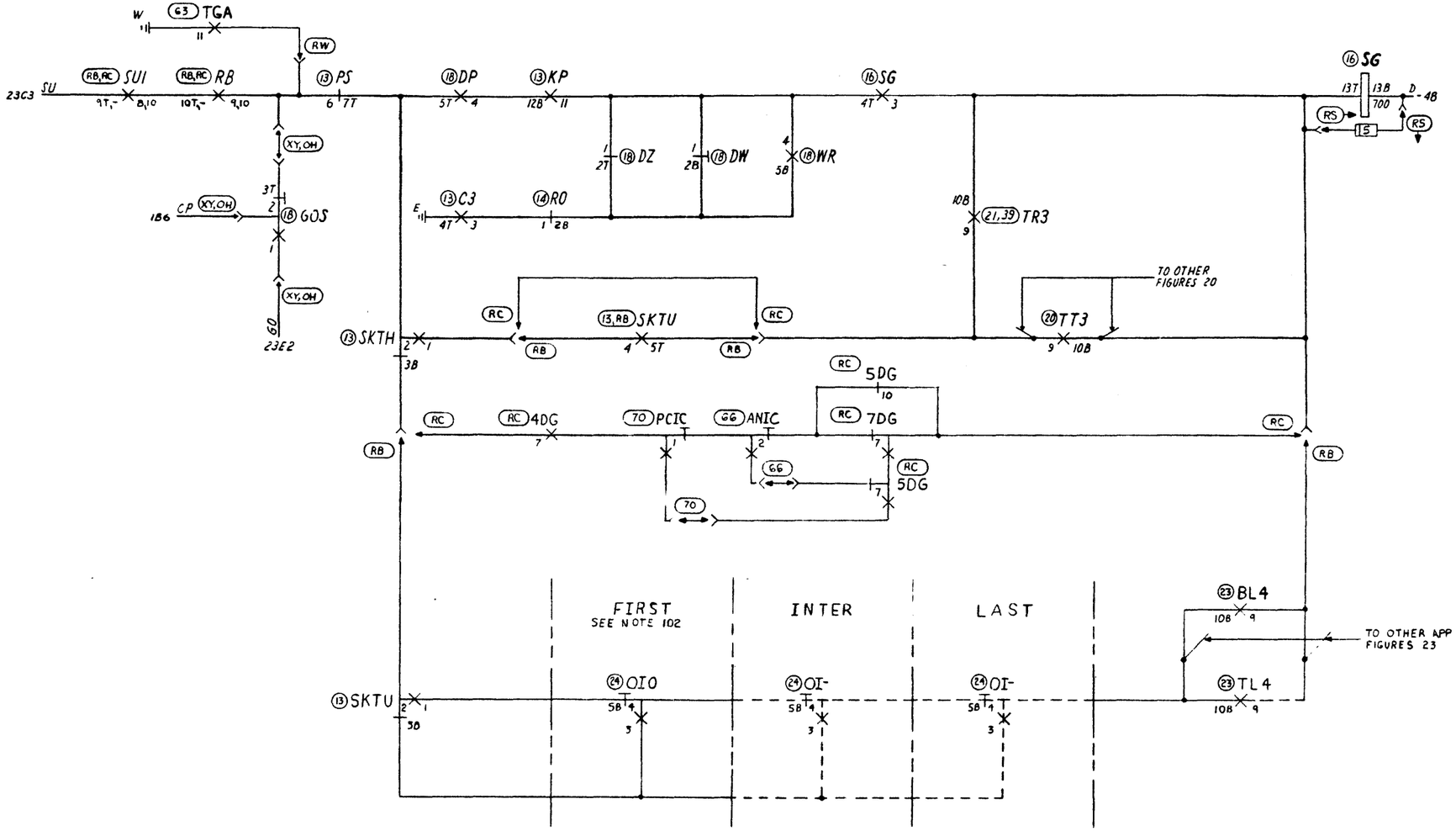
BELL TELEPHONE LABORATORIES INCORPORATED

ISSUE 68B

SD-25161-01-B26

FS 34

PULSE GENERATOR CONTROL



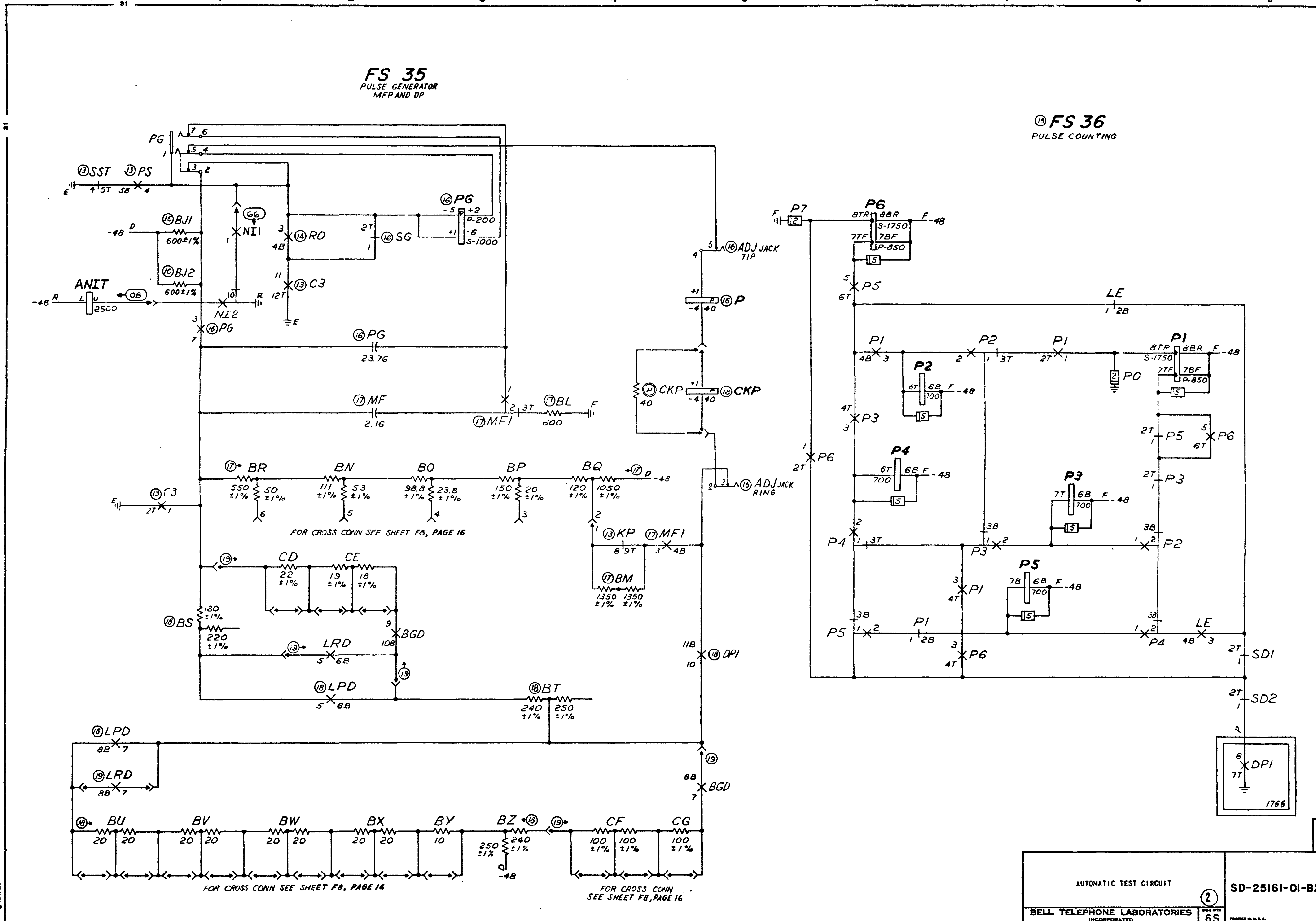
DRAWING ISSUE

36D	TAG
37D	PRN EDM ANS

ISSUE 68B

AUTOMATIC TEST CIRCUIT	(2)	SD-25161-01-B27
BELL TELEPHONE LABORATORIES INCORPORATED	6S	PRINTED IN U.S.A.

SD-25161-01-B27



DRAWING ISSUE 36D 37D 58D

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-B28

BELL TELEPHONE LABORATORIES INCORPORATED

6S

FS 37
TRANSMISSION CONTROL

AUTOMATIC TRANSMISSION TEST AND CONTROL CIRCUIT

ONE UP CHECK ON TO-T4, T00, T5, U0-U4, U00 AND U5

TO AUTO. TRANS TEST & CONT. CKT

TO AUTO. TRANS TEST & CONT CKT WHEN PROVIDED. (SEE NOTE 21)

TO MILLIWATT DIST CKT WHEN PROVIDED

TO AUTO. TRANS TEST & CONT. CKT

(32) FS 38
SUPERVISORY PROGRESSION (SEE NOTE 1)

(32) FS 39
TIME PROGRESS MEMORY (SEE NOTE 1)

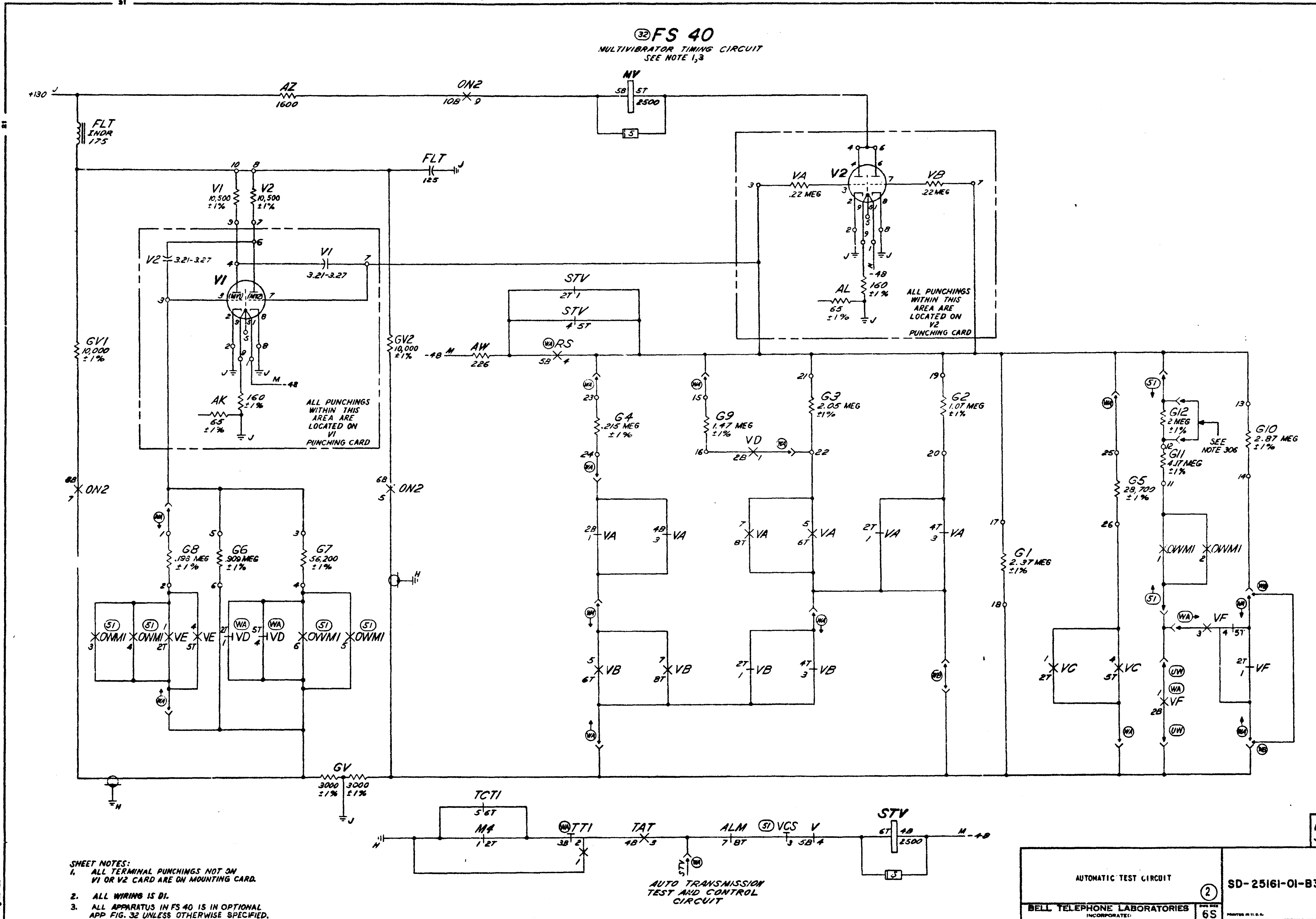
TO AUTO. TRANS TEST & CONT CKT

NOTES:
1. ALL APPARATUS IN FS 38 AND FS 39 IS IN OPTIONAL APP FIG. 32 UNLESS OTHERWISE SPECIFIED.

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-B29

ISSUE 63B



(32) FS 40
MULTIVIBRATOR TIMING CIRCUIT
SEE NOTE 1,3
+130
AZ 1600
ON2
MV 2500
FLT INDR 175
FLT 125
V1 10,500 ±1%
V2 10,500 ±1%
VA .22 MEG
VB .22 MEG
AL 65 ±1%
AK 65 ±1%
160 ±1%
ALL PUNCHINGS WITHIN THIS AREA ARE LOCATED ON V1 PUNCHING CARD
ALL PUNCHINGS WITHIN THIS AREA ARE LOCATED ON V2 PUNCHING CARD
STV
RS
AW 226
GV1 10,000 ±1%
GV2 10,000 ±1%
G4 .215 MEG ±1%
G9 1.47 MEG ±1%
G3 2.05 MEG ±1%
G2 1.07 MEG ±1%
G12 2 MEG ±1%
G11 4.17 MEG ±1%
G10 2.87 MEG ±1%
G5 28,700 ±1%
G1 2.37 MEG ±1%
G8 .198 MEG ±1%
G6 .909 MEG ±1%
G7 56,200 ±1%
SEE NOTE 306
OWMI
VA
VB
VC
VD
VE
VF
GV 3000 ±1% 3000 ±1%
TCT1
M4
TT1
TAT
ALM
VCS
V
STV 2500
AUTO TRANSMISSION TEST AND CONTROL CIRCUIT

SHEET NOTES:
1. ALL TERMINAL PUNCHINGS NOT ON V1 OR V2 CARD ARE ON MOUNTING CARD.
2. ALL WIRING IS DI.
3. ALL APPARATUS IN FS 40 IS IN OPTIONAL APP FIG. 32 UNLESS OTHERWISE SPECIFIED.

DRAWING ISSUE	
36D	
37D	
38AR	
52D	
57A	

57

AUTOMATIC TEST CIRCUIT

(2)

SD-25161-01-B30

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-B30

FS 41
TROUBLE CATAGORIES

(32) FS 42
SUPERVISORY PULSE LENGTH TIMING

AUTOMATIC TRANSMISSION TEST AND CONTROL CKT

DRAWING ISSUE	
37D	PEH EDW AHD
38AR	PEH EDW AHD JLR
39AR	TYL AHD
41D	CLL AHD
43AC	JGS AHD
45D	DJS AHD
46AC	EAM AHD
48A	WLL AHD
52D	EAM AHD
54AR	TAL AHD
56A	DJL AHD
58D	

ISSUE 68B

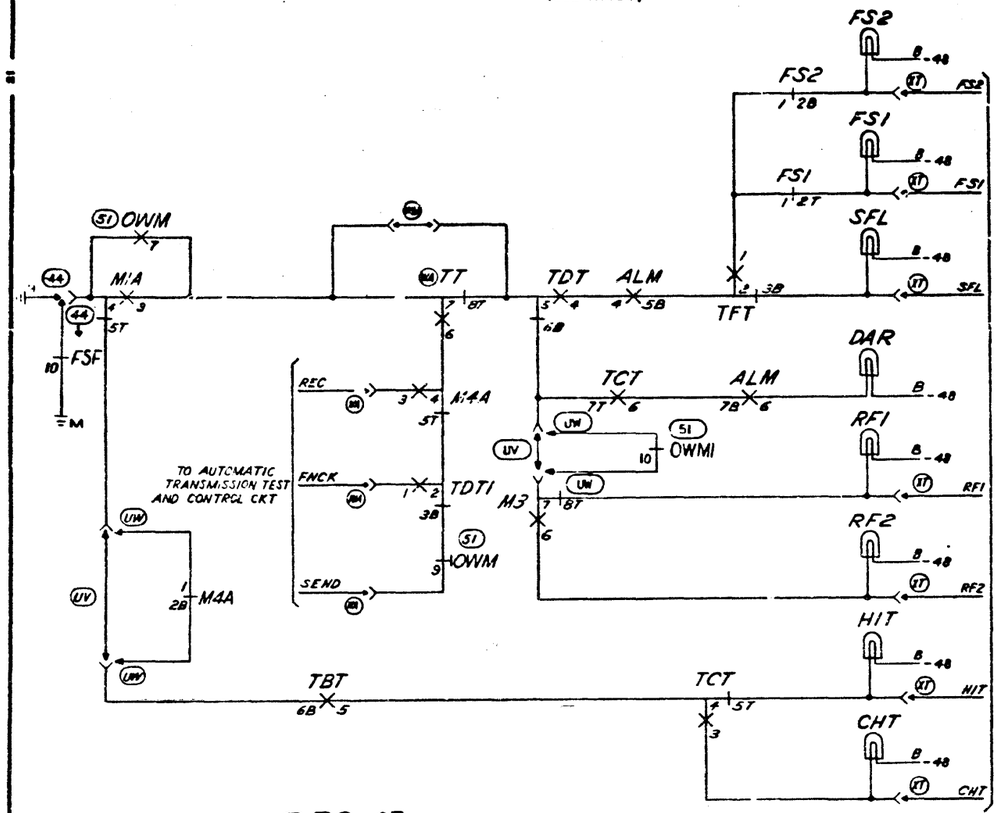
AUTOMATIC TEST CIRCUIT (2) SD-25161-01-831

BELL TELEPHONE LABORATORIES INCORPORATED 65

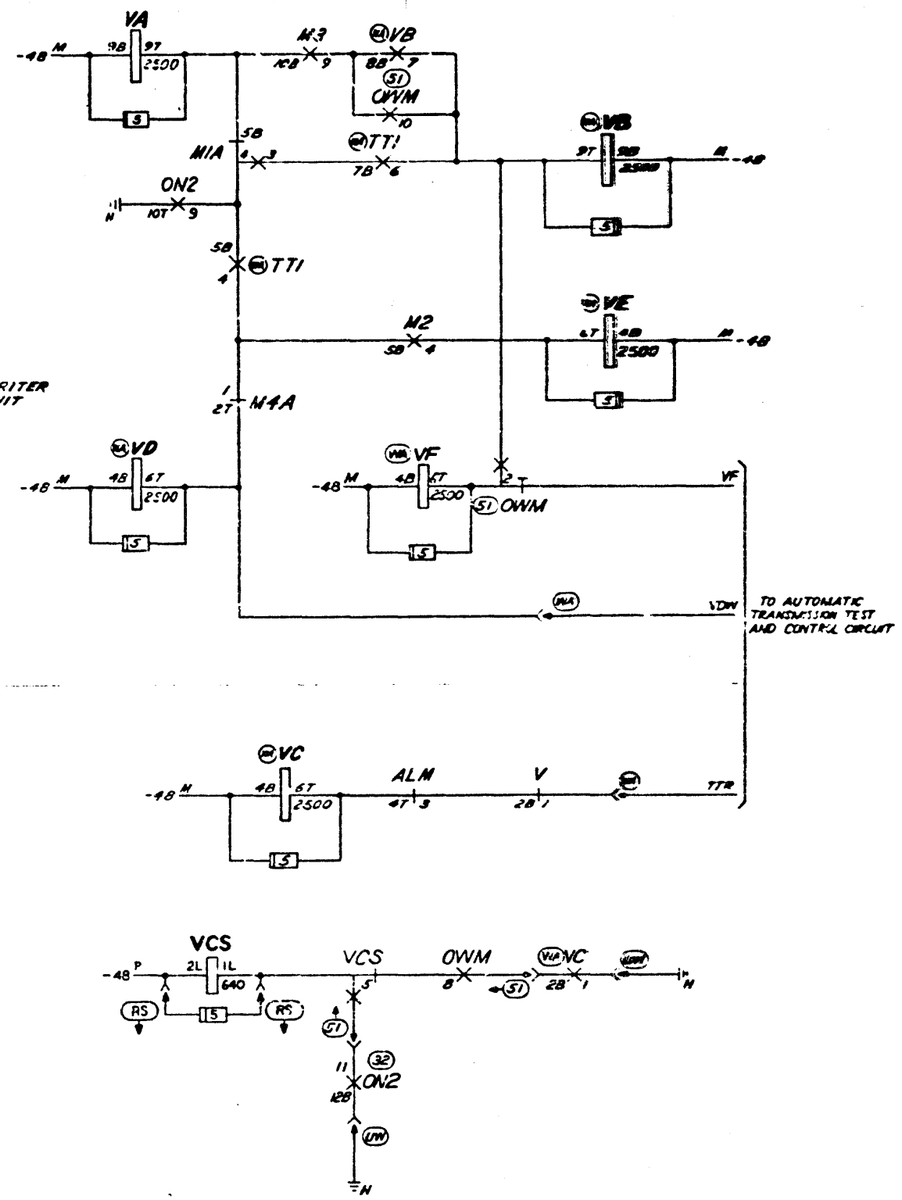
SD-25161-01-831

STABILOHM

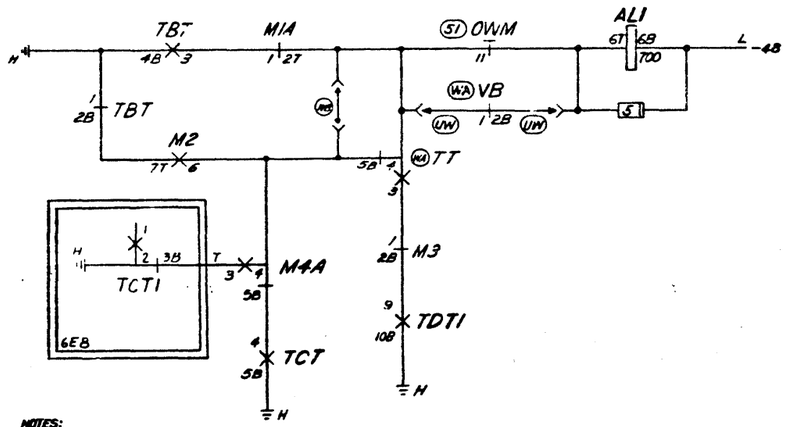
(32) FS 43
PROGRESS AND TROUBLE LAMPS
(SEE NOTE 1)



(32) FS 44
TRANSMISSION PROGRESS
(SEE NOTE 1)



(32) FS 45
DELAY ALARM CIRCUIT
(SEE NOTE 1)



NOTES:
1. ALL APPARATUS IN FS 43, 44 AND 45 IS IN OPTIONAL APP FIG. 32 UNLESS OTHERWISE SPECIFIED.

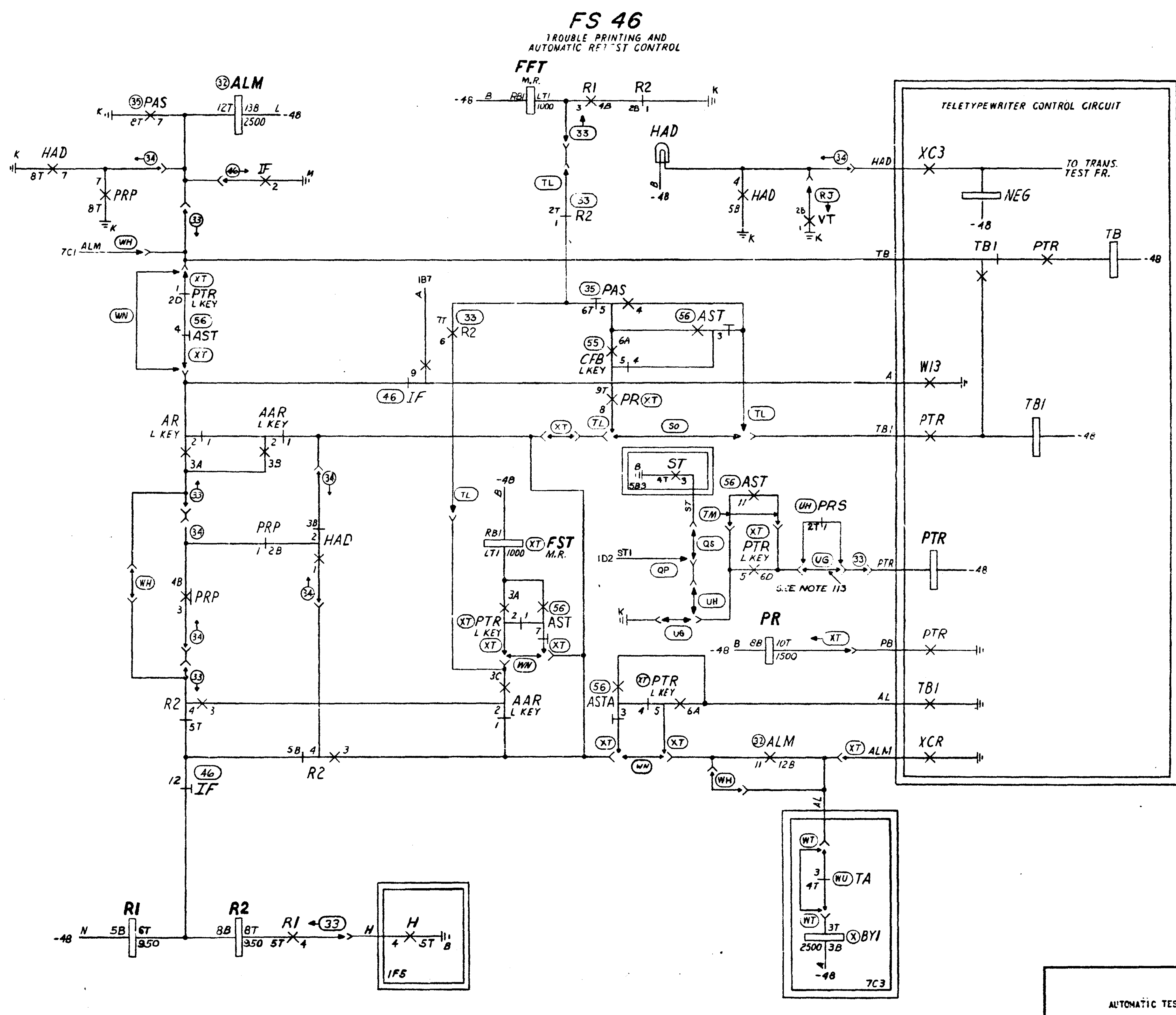
ISSUE 65A

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-832

BELL TELEPHONE LABORATORIES INCORPORATED

SHEET SIZE 6S



AUTOMATIC TEST CIRCUIT

SD-25161-01-B33

BELL TELEPHONE LABORATORIES INCORPORATED

ISSUE 66B

PART OF FS 13
CLASS RELAYS

DP AND MF CLASS RELAYS

SEE NOTE 203

TO OTHER APP FIGURES 20

1ST APP FIG. 20

2ND APP FIG. 20

1ST APP FIG. 23

2ND APP FIG. 23

3RD APP FIG. 23

TO OTHER (DM-) RELAYS

SEE NOTES 202 & 203

DRAWING ISSUE	
41D	PNP CLN
47D	NLF PCV
48A	REL
52D	PVS
55D	PVS
60D	
61D	

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)

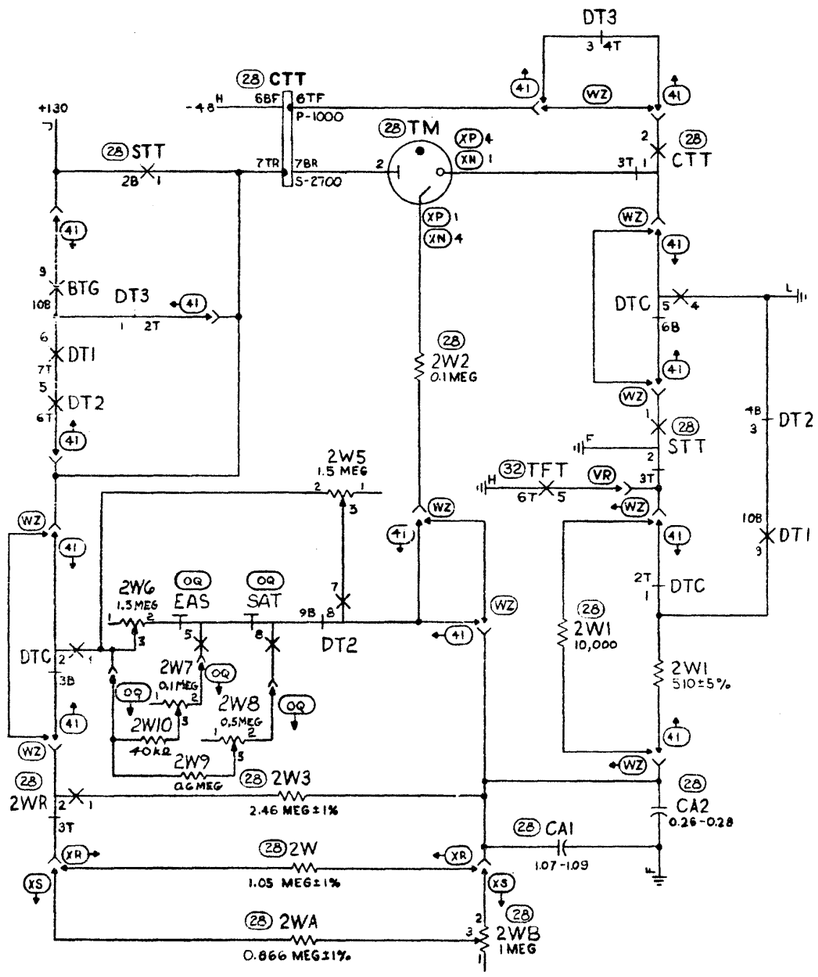
BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-834

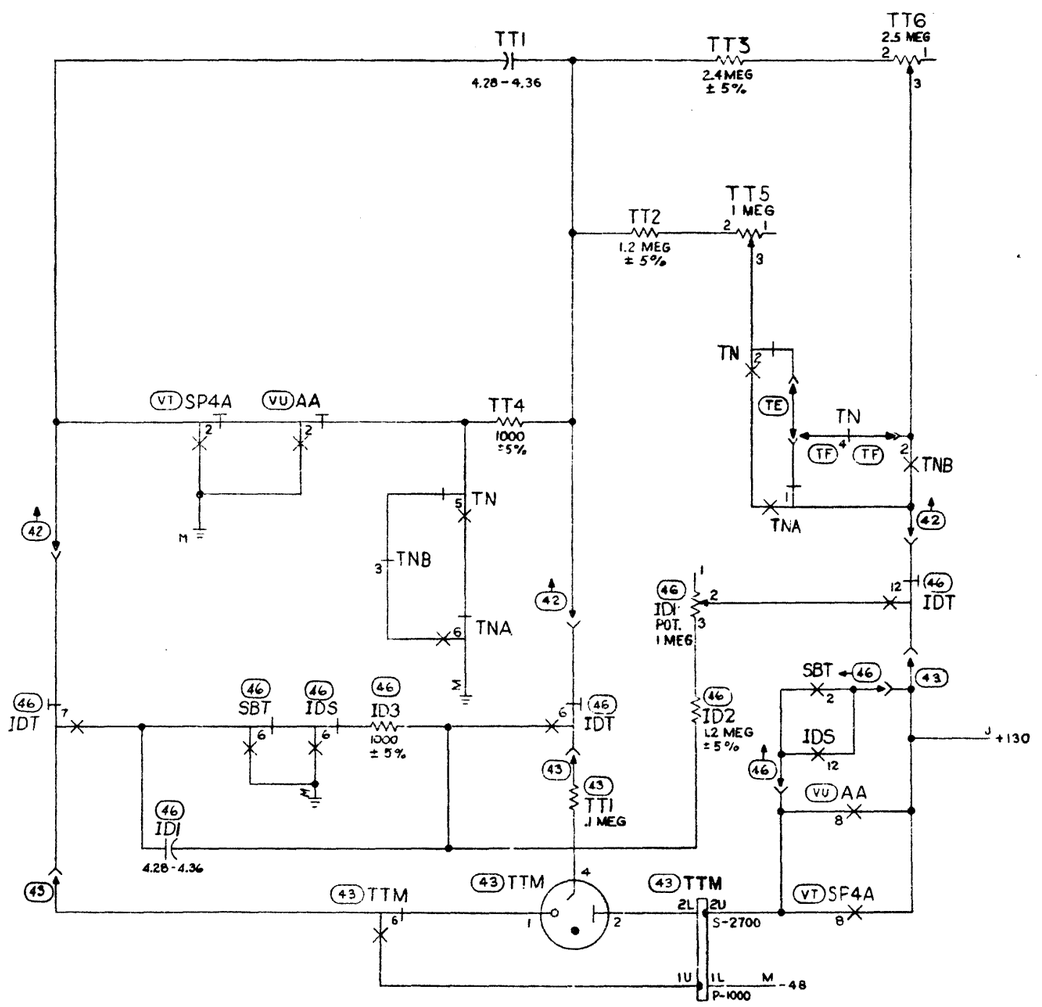
SD-25161-01-834

STABILOHM

FS 30
TIMING CKT FOR 2 WAY
TRUNKS AND BRUSH CONTINUITY RECYCLE



FS 47
TONE TIMER



DRAWING ISSUE	
41D	TLC CLK AMD
43AC	JGS
44AF	MRS EPR AMD
45D	jht LWK AMD
47D	JAS PSH AMD
48A	KEL MC AMD
51A	RMS MC AMD
55D	CK GPL AMD
56A	CK GPL AMD
59AC	

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2) SD-25161-01-835

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-25161-01-835

STABILO

TONE DETECTOR CKT

FS 48
TONE DETECTOR

TO TELETYPEWRITER CONTROL CKT IF PROVIDED

DRAWING ISSUE

45D	1A1
47D	
48A	
52D	
53D	
54AR	
56A	
57A	FILK
60D	

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)

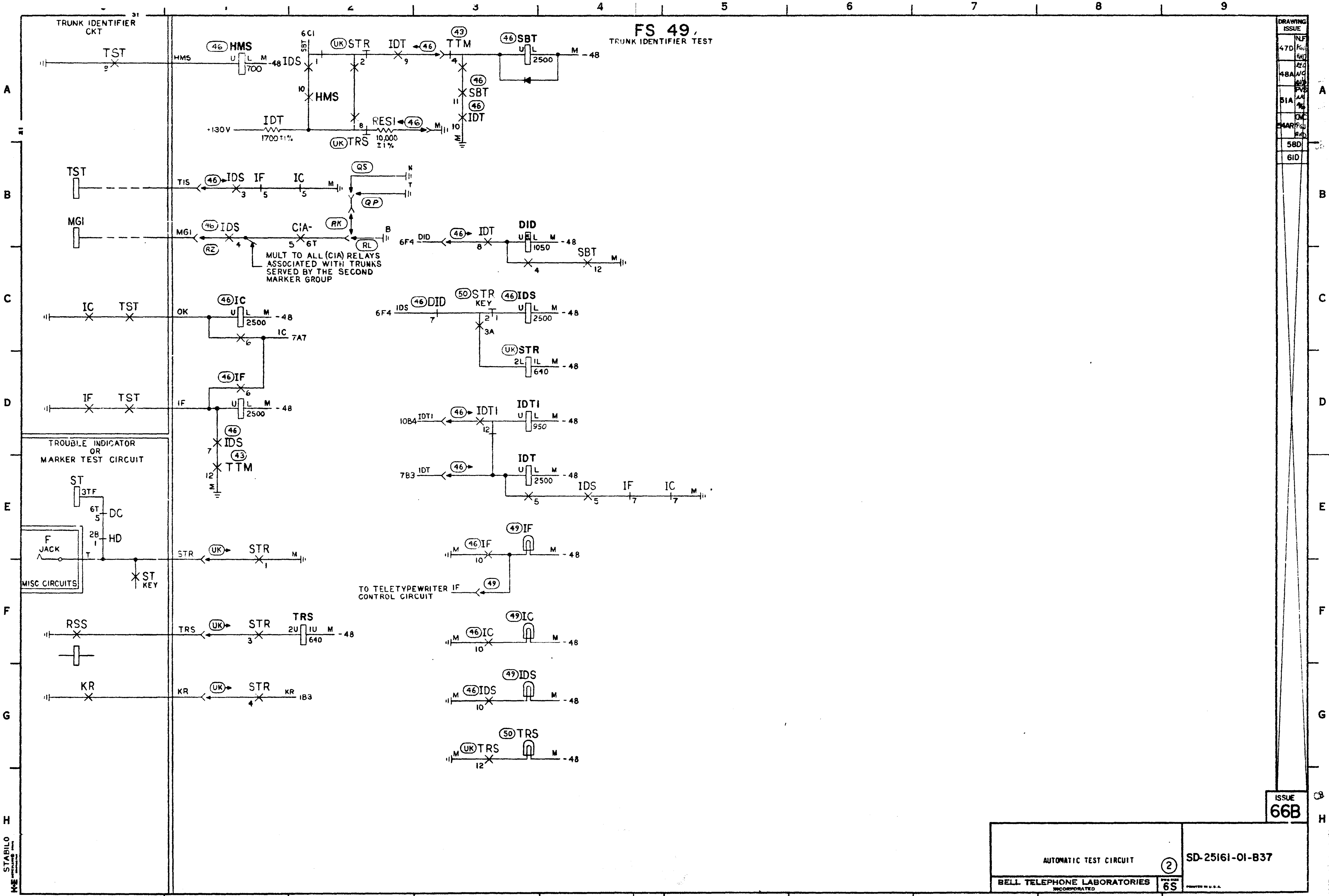
SD-25161-01-B36

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-B36

STABILOHM



ISSUE 66B

AUTOMATIC TEST CIRCUIT

SD-25161-01-B37

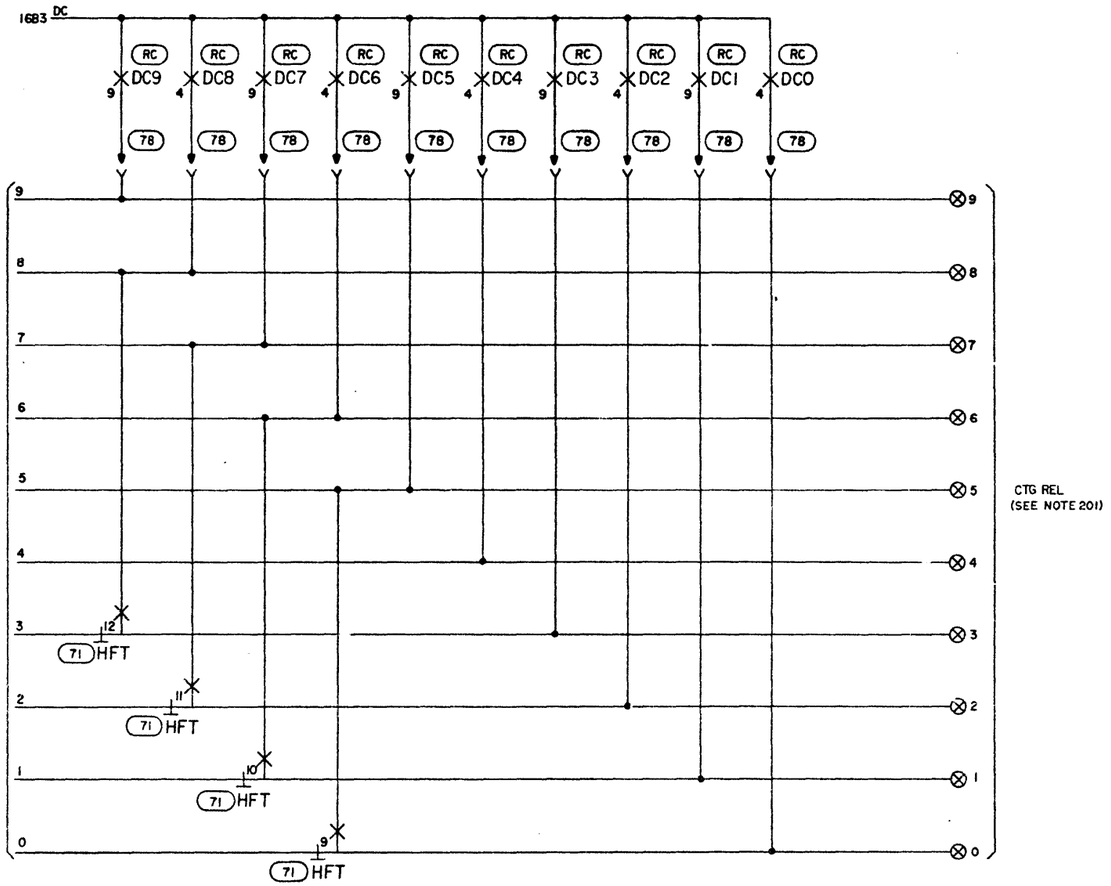
BELL TELEPHONE LABORATORIES INCORPORATED

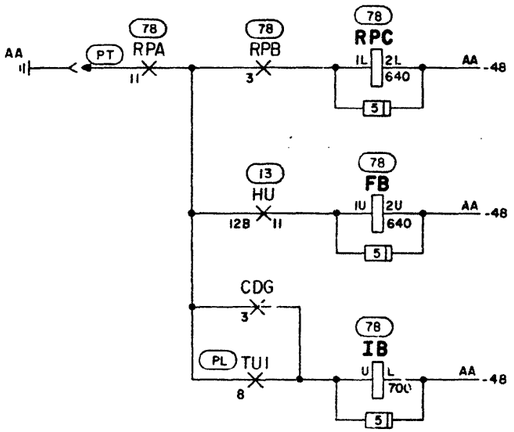
6S

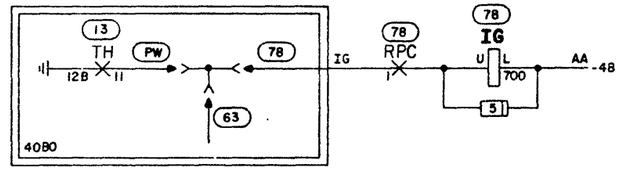
SD-25161-01-B37

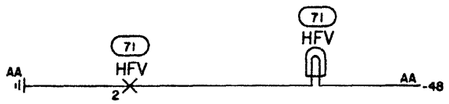
FS 50

RP COUNTING RELAY SELECTION AND DIGIT CONTROL





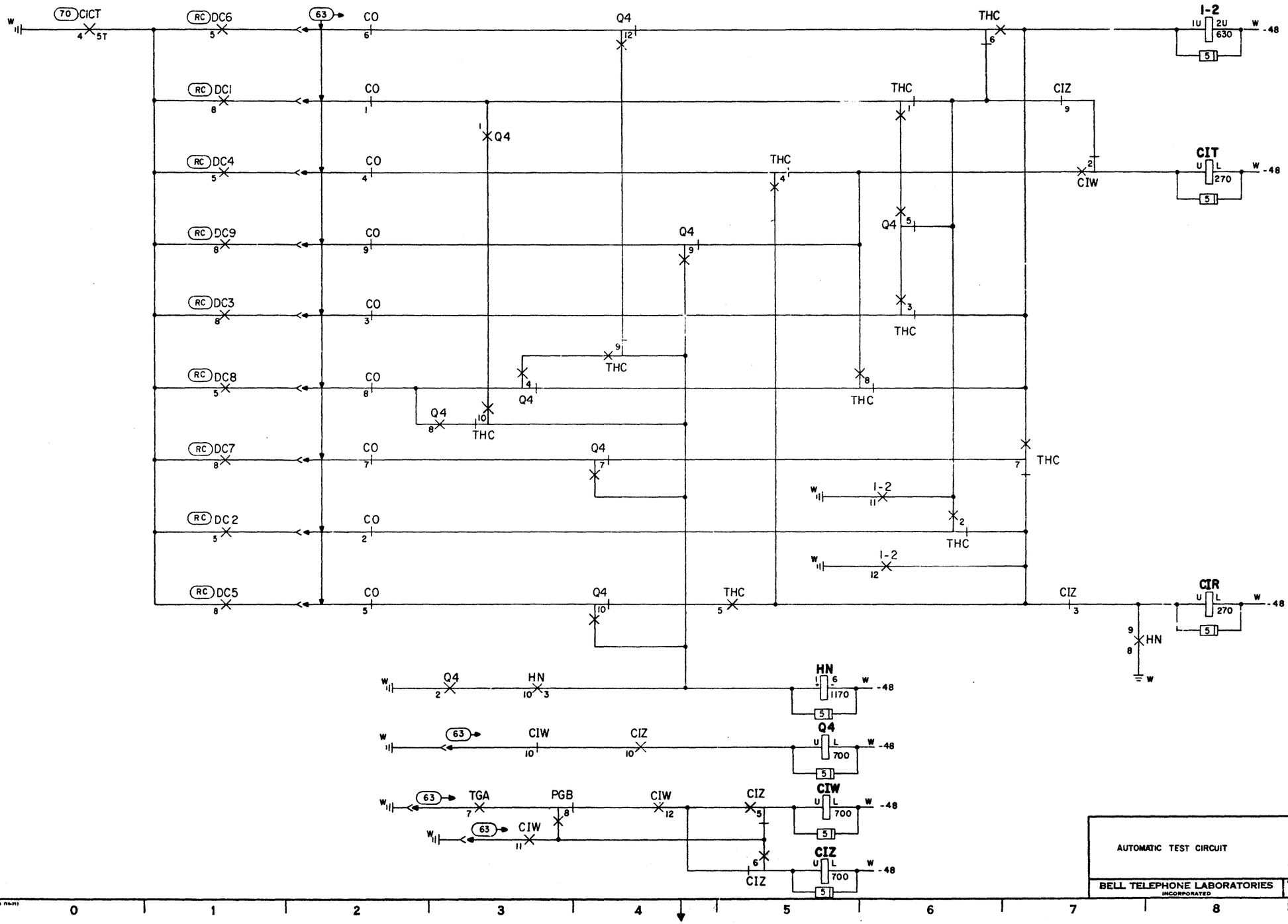




AUTOMATIC TEST CIRCUIT		DWG SIZE 6S	ISSUE 68B
BELL LABORATORIES	SD-25161-01-		B38

PART OF FS 52

PCI PULSING



ISSUE 65A

AUTOMATIC TEST CIRCUIT (2)

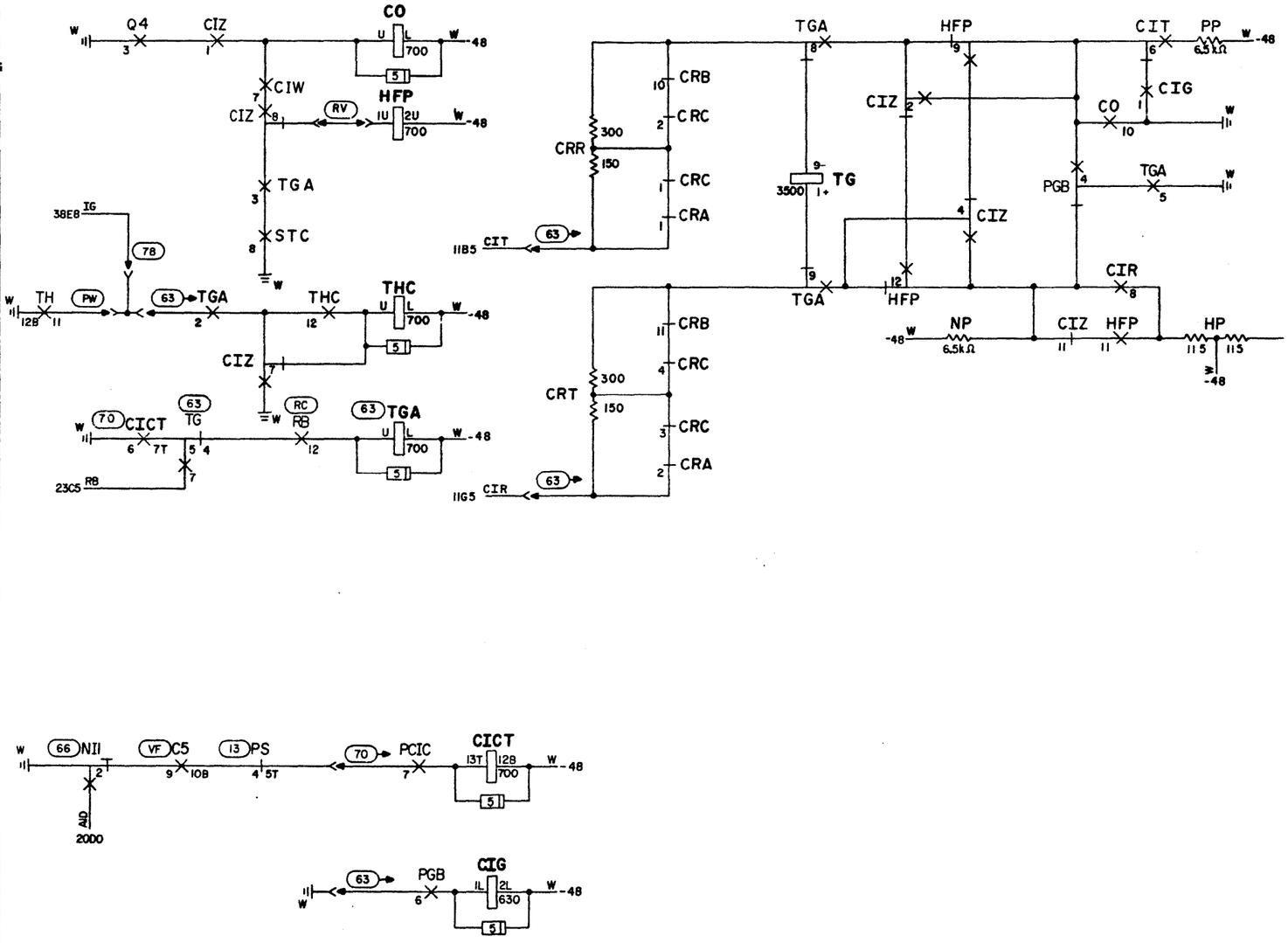
BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-B39

6S

PART OF FS 52

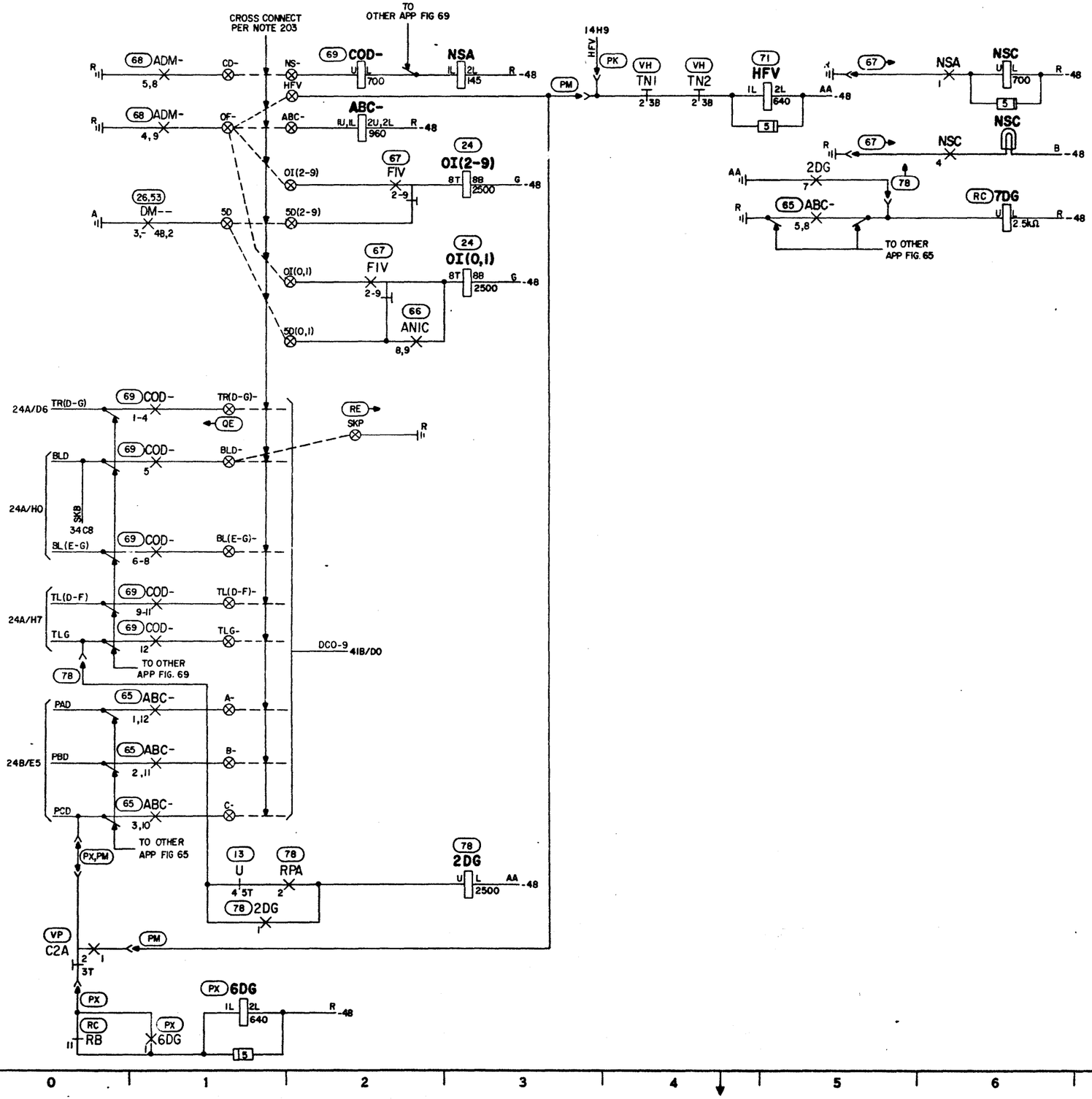
PCI PULSING



SD-25161-01-B40

PART OF FS 53

NON-STANDARD AND 5 OR 7 DIGIT CODE GENERATION

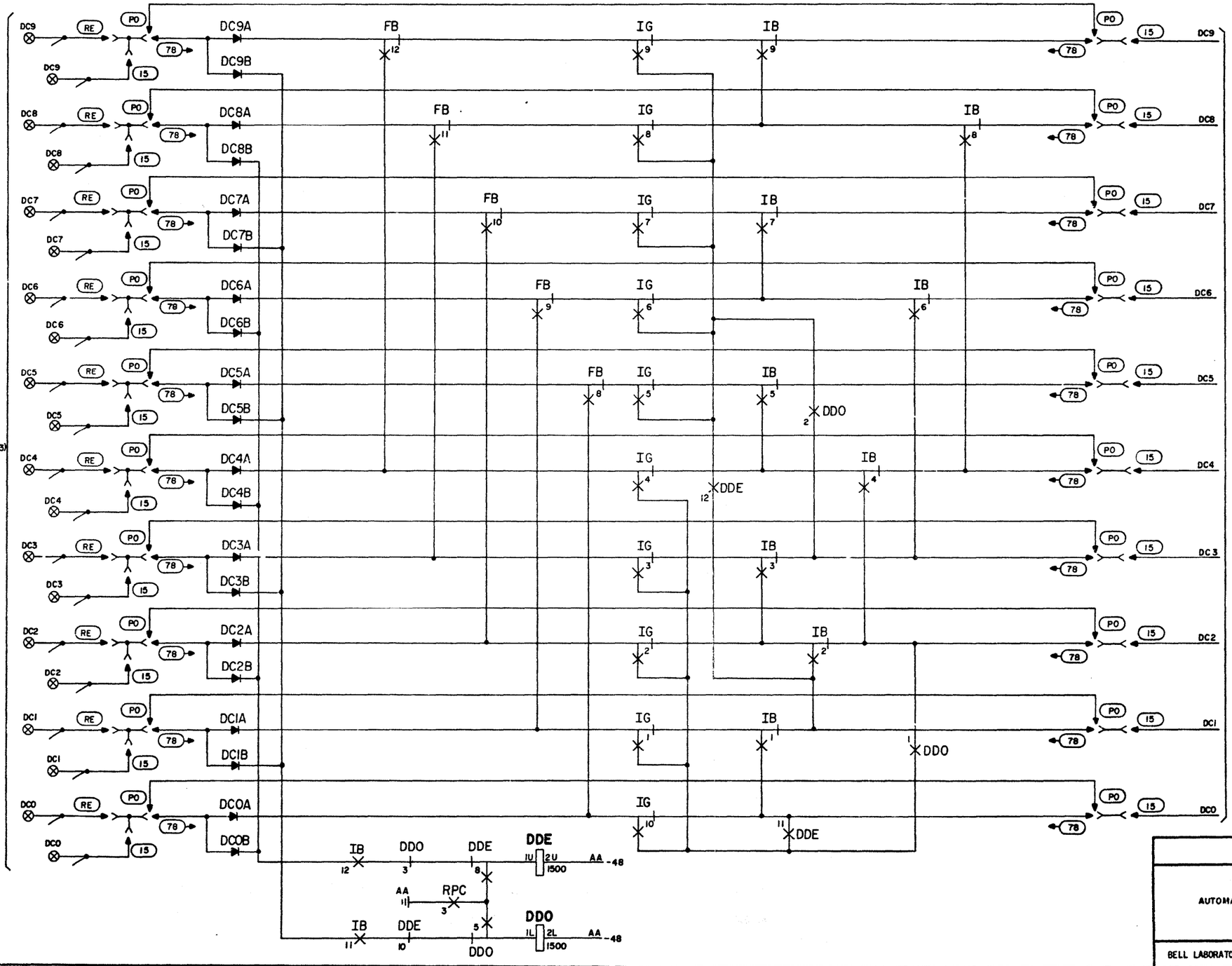


ISSUE 68B	
AUTOMATIC TEST CIRCUIT (2)	SD-25161-01-B41A
BELL TELEPHONE LABORATORIES INCORPORATED	DRG SIZE 6S

SD-25161-01-B41A

PART OF FS 53

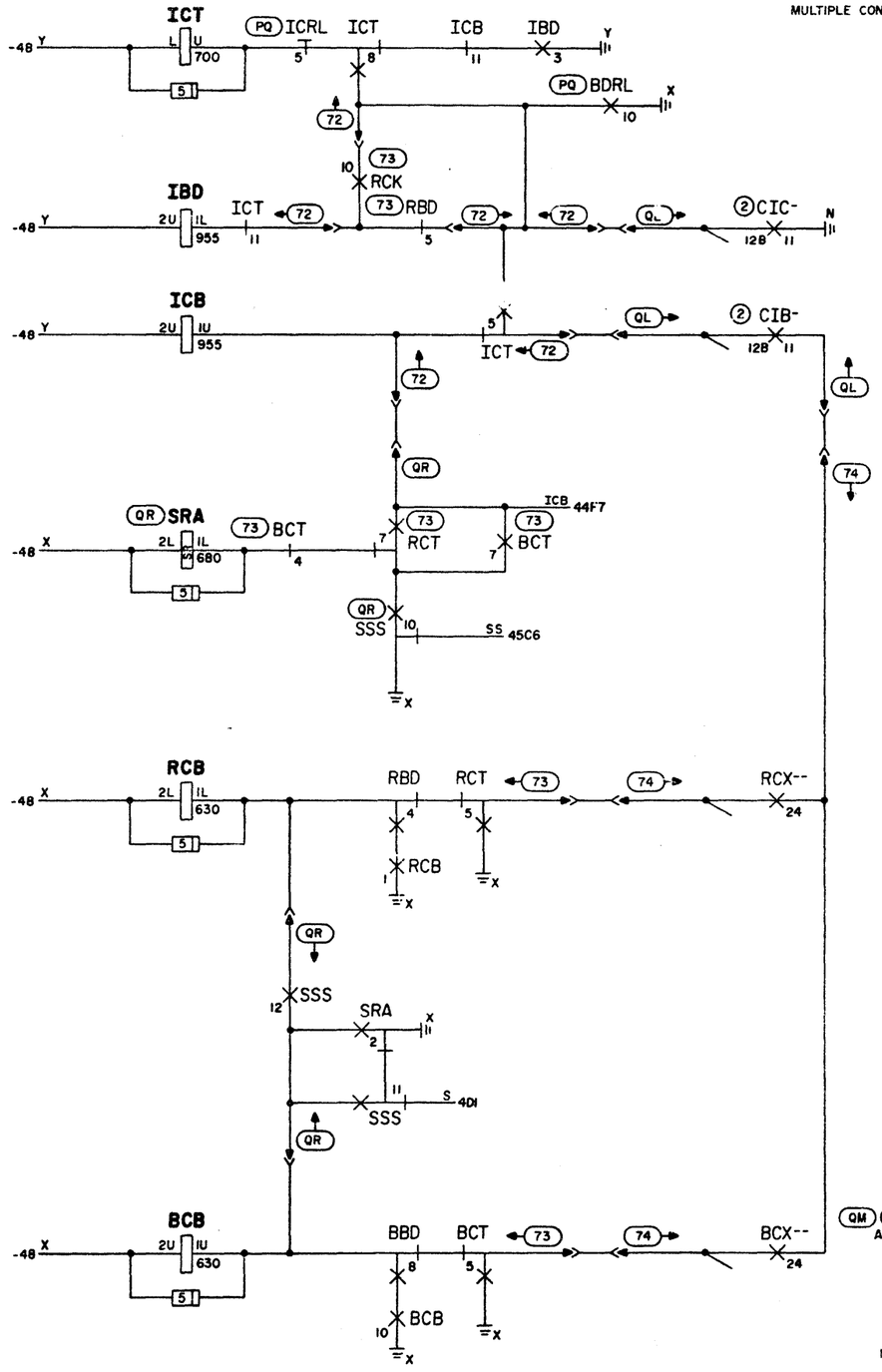
NON STANDARD AND 5 OR 7 DIGIT CODE GENERATION

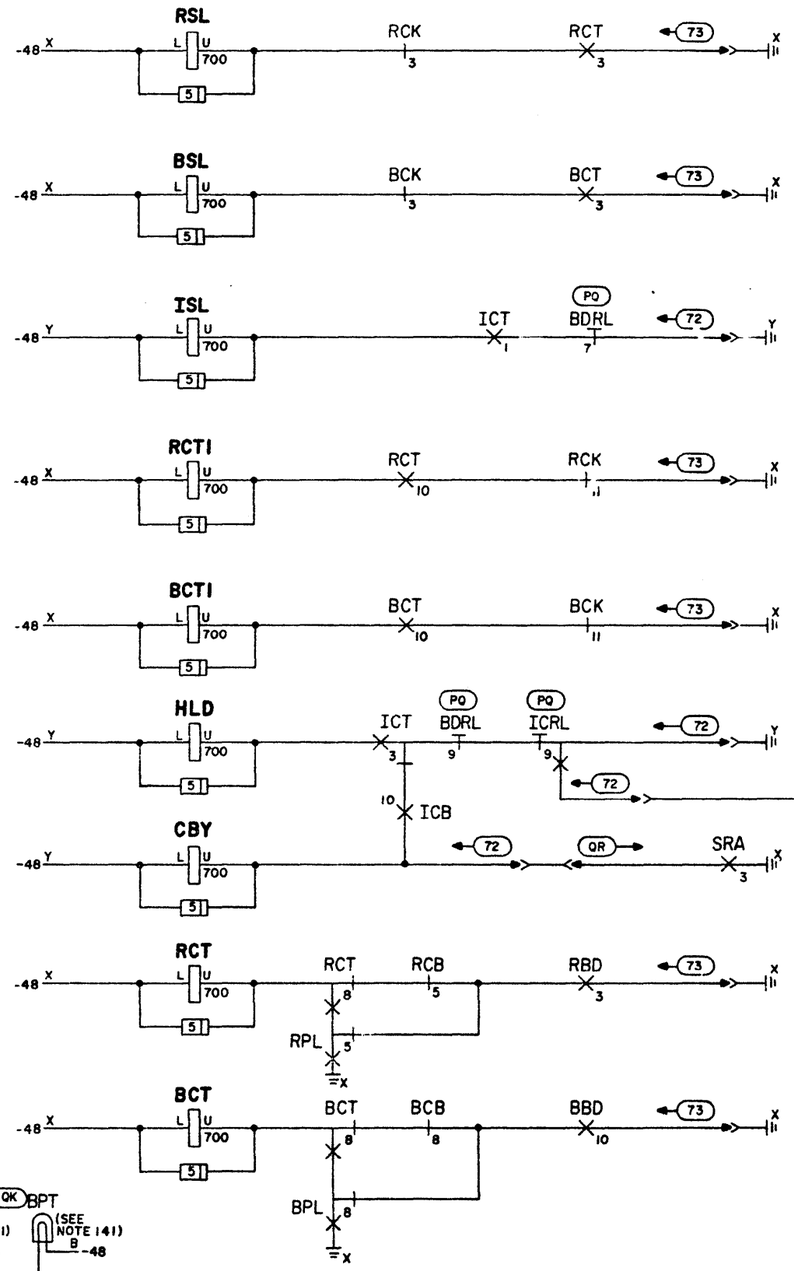


AUTOMATIC TEST CIRCUIT		DWG SIZE 65	ISSUE 68B
BELL LABORATORIES	SD-25161-01-		B418

PART OF FS 54

MULTIPLE CONNECTOR ACCESS





AUTOMATIC TEST CIRCUIT	SD-25161-01-B42
BELL TELEPHONE LABORATORIES INCORPORATED	6S

ISSUE 68B

PART OF FS 54
MULTIPLE CONNECTOR ACCESS

3A/H5

S (72) ISL (72) CIA- (1,22) CONN SW SEL O.N. (0-9) B (RL)
-48 (QH) (QH) (74)

BCY-- -48 Z L U 700 [5] BCX-- 22 BCY-- 24 (74) (73) BCT 9 X
RCY-- -48 Z U 700 [5] RCX-- 22 RCY-- 24 (74) (73) RCT 9 X

X (73) CCK 5 7 RCTI 21 RCK 8 RCK U L 700 [5] X -48
21 BCTI
RCT 1 X
X BCT 1 8 BCK BCK U L 700 [5] X -48

PD1 -48 X 2L 1L 2450 EVN 8 (73) (74) RCX-- 13
PD2 -48 X 2U 1U 2450 EVN 9 (73) (74) RCX-- 14
PD3 -48 X 2U 1U 2450 EVN 10 (73) (74) RCX-- 15
(73) (74) RCX-- 16
(73) (74) RCX-- 17
(73) (74) RCX-- 18

(74) (PA) 74 BCX-- 13 (PA) BVN 5 (PA) PD4 1L 2L 2450 X -48
EX-- SEE NOTE 215
GND Z
EY--
(74) (PA) 74 BCX-- 14 (PA) BVN 4 (PA) PD5 1U 2U 2450 X -48
EZ--
(74) (PA) 74 BCX-- 15 (PA) BVN 3 (PA) PD6 1U 2U 2450 X -48
OX--
(74) (PA) 74 BCX-- 16
OY--
(74) (PA) 74 BCX-- 17
OZ--
(74) (PA) 74 BCX-- 18
TO ALL (BCX--) RELAYS

(PA) BVN -48 X 1L 2L 2450 (73) BH(EVEN) 11 (PA) X
EVN -48 X 1U 2U 2450 RH(EVEN) 2 (73) X

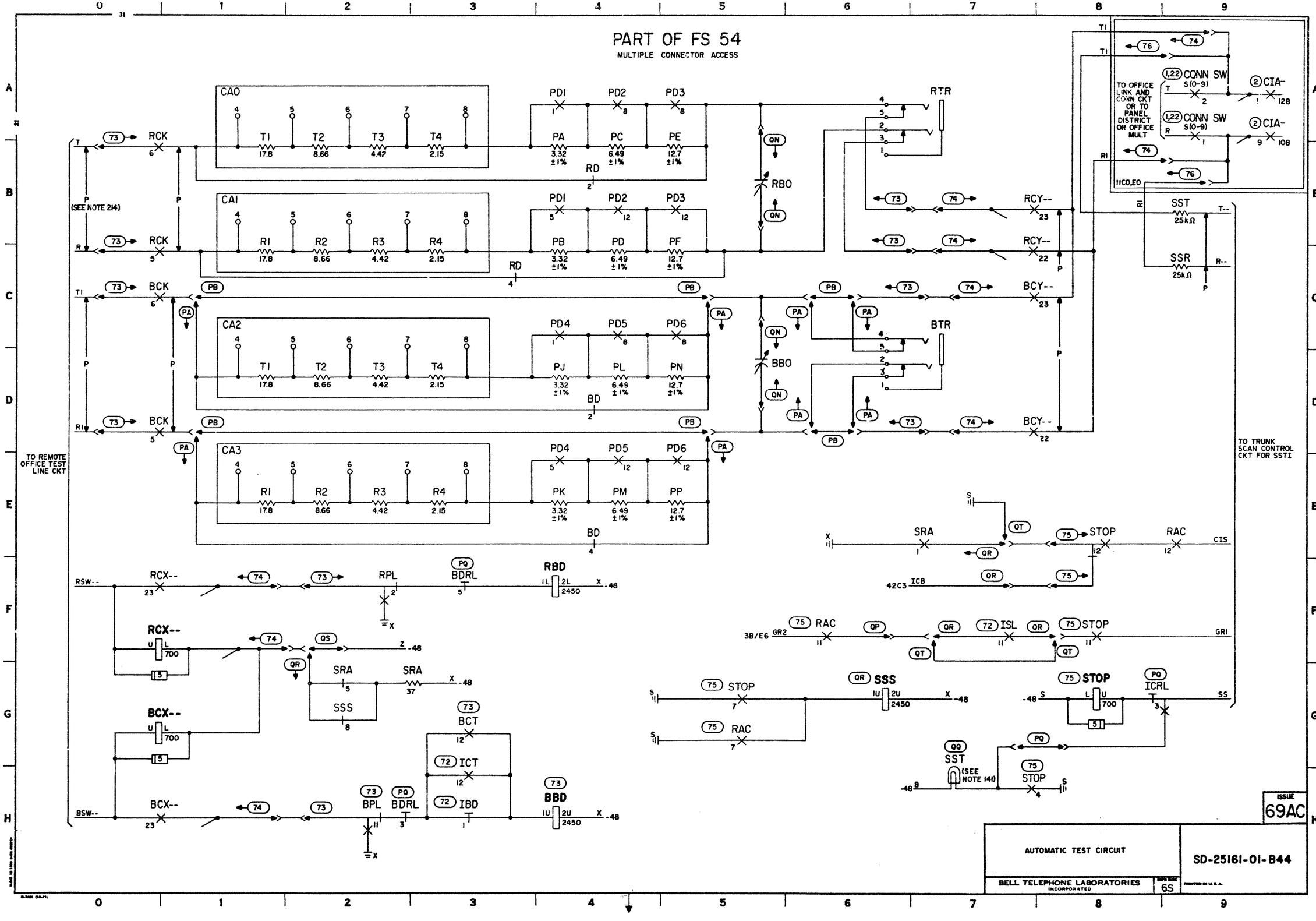
CBT Y -48 B T-900 T ROT Q-155 TMD 10 TMC 2 TMA 3 CBY 4 (72) Y
CBT RM S-900 LM RLS P-275 CBT ON 1 2

ISSUE 69AC

AUTOMATIC TEST CIRCUIT	SD-25161-01-843
BELL TELEPHONE LABORATORIES INCORPORATED	SIZE 6S

PART OF FS 54

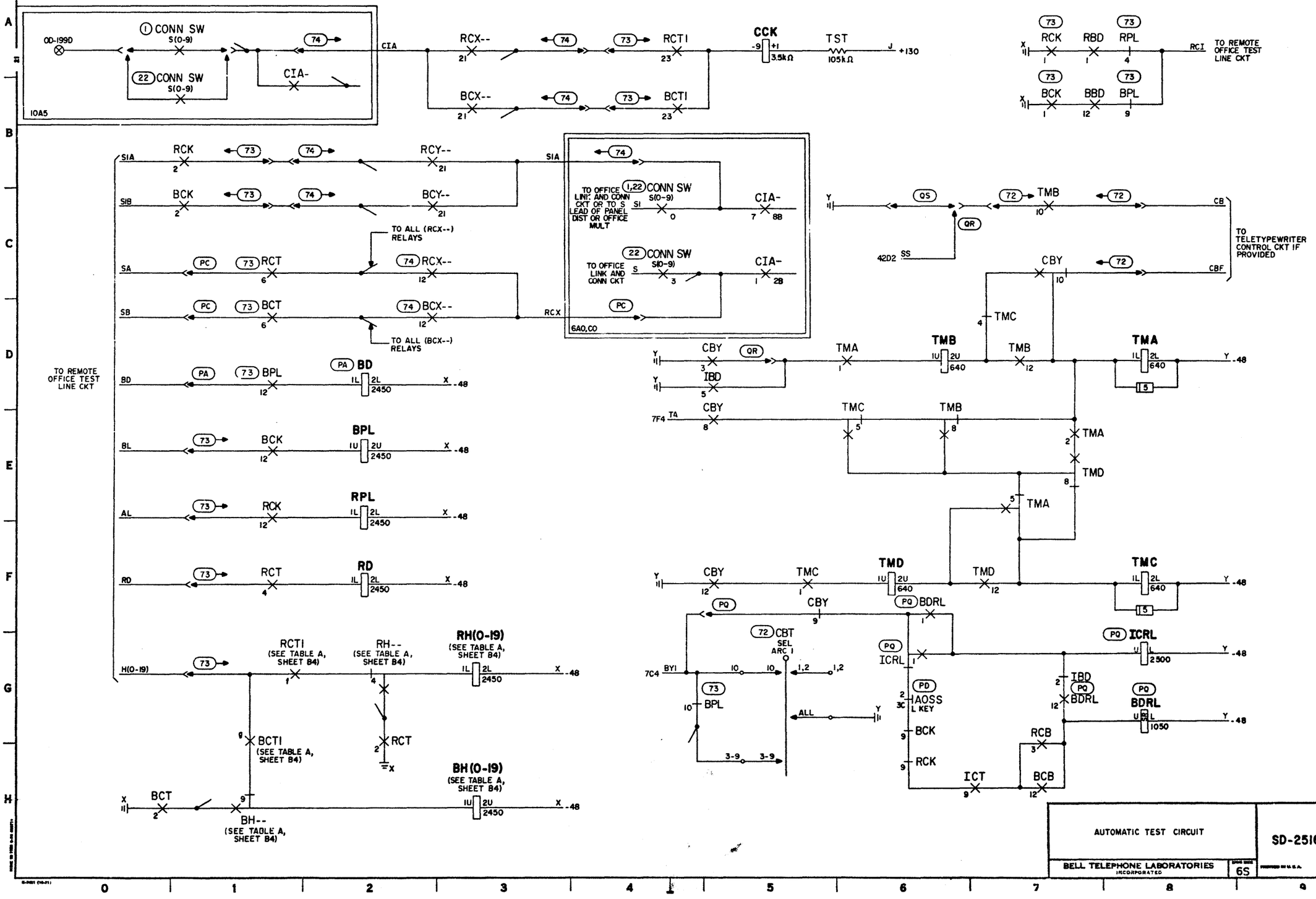
MULTIPLE CONNECTOR ACCESS



ISSUE	69AC
AUTOMATIC TEST CIRCUIT	SD-25161-01-B44
BELL TELEPHONE LABORATORIES INCORPORATED	6S

PART OF FS 54

MULTIPLE CONNECTOR ACCESS



ISSUE 69AC

AUTOMATIC TEST CIRCUIT

SD-25161-01-B45

BELL TELEPHONE LABORATORIES INCORPORATED

SHEET 6S

APP FIG. 1

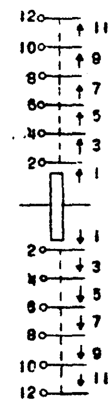
SWITCH

DESIG	CONN SW (0-9)		CONN SW (0-9)		CONN SW (0-9)		CONN SW (0-9)		CONN SW (0-9)		CONN SW (0-9)	
CODE	D98C97		301E, 305D		301E		325D		305D		315D	
OPTION	A(MFR DISC)		B(MFR DISC)		D(MFR DISC)		YH		ZA (MFR DISC)		ZB (MFR DISC)	
LEVEL	WIRE	LOC	WIRE	LOC	WIRE	LOC	WIRE	LOC	WIRE	LOC	WIRE	LOC
0-9	0	6A0	0	6A0	0	6A0	0	6A0	0	6A0	0	6A0
	1	11G1	1	11G1	1	11G1	1	11G1	1	11G1	1	11G1
	2	11B1	2	11B1	2	11B1	2	11B1	2	11B1	2	11B1
	3	10A6	3	10A6	3	10A6	3	10A6	3	10A6	3	10A6
MAGNETS	HOLD	4D4	HOLD	4D4	HOLD	4D4	HOLD	4D4	HOLD	4D4	HOLD	4D4
	SEL	3A/D6,G3	SEL	3A/D6,G3	SEL	3A/D6,G3	SEL	3A/D6,G3	SEL	3A/D6,G3	SEL	3A/D6,G3
SEL O.N. CONT	SEL 0-9	3A/G4	SEL 0-9	3A/G4	SEL 0-9	3A/G4	SEL 0-9	3A/G4	SEL 0-9	3A/G4	SEL 0-9	3A/G4
HOLD O.N. CONT	HOLD 0-19	5G4	HOLD 0-19	5G4	HOLD 0-19	5G4	HOLD 0-19	5G4	HOLD 0-19	5G4	HOLD 0-19	5G4

APP FIG. 2

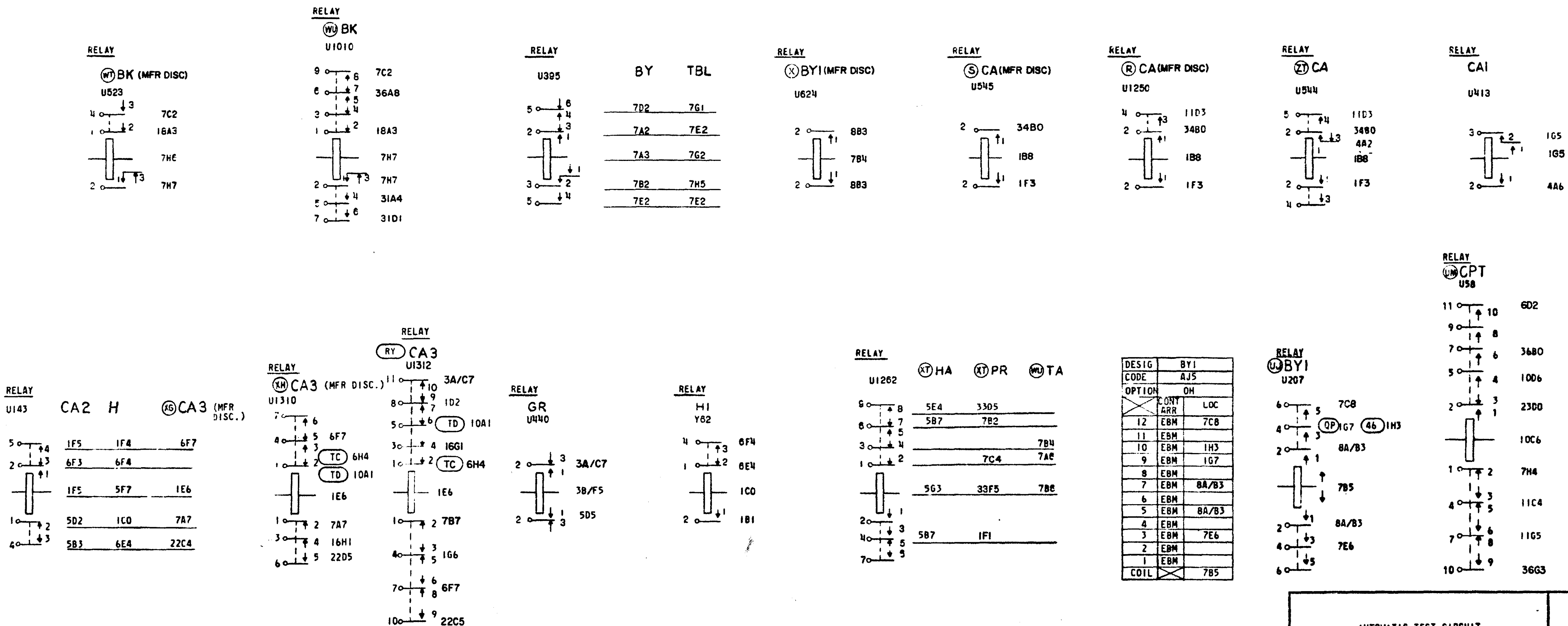
RELAY

U115



CIA-	CIB-	CIC-	CID-
3B/D4	3B/E4	3B/E4	3B/F4
3B/C1-F1	4G1	4H1	3A/G3
9D6	4G1	4H1	3A/G3
37B2	4G1	4H1	3A/G3
	4G1	4H1	3A/G3
3A/G4	4G1	4H1	3A/G3
3B/C5	3B/D5	3B/E5	3B/E5
6C0	4D3	4G1	3A/D5
10A5	4D3	4G1	3A/D5
3B/G1,H1	4D3	4G1	3A/D5
6A1	4D3	4G1	3A/D5
11G2	4D3	4G1	3A/D5
11B2	42B4	42B4	2B4,B7,C4,D7

PART OF APP FIG. 3



DESIG	BY1	
CODE	AJ5	
OPTION	OH	
	CONT ARR	LOC
12	EBM	7C8
11	EBM	
10	EBM	1H3
9	EBM	1G7
8	EBM	
7	EBM	8A/B3
6	EBM	
5	EBM	8A/B3
4	EBM	
3	EBM	7E6
2	EBM	
1	EBM	
COIL		7B5

DRAWING ISSUE
36D
37D
38AR
39AR
41D
42B
45D
47D
48A
52D
55D
56A
58D
61D

ISSUE 63B

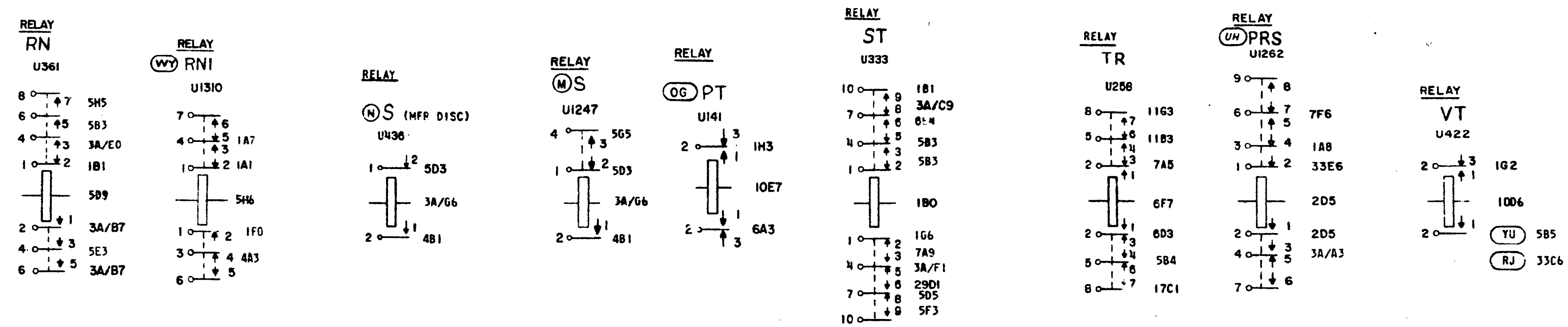
AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-C1 (2) 6S

SD-25161-01-C1

PART OF APP FIG.3



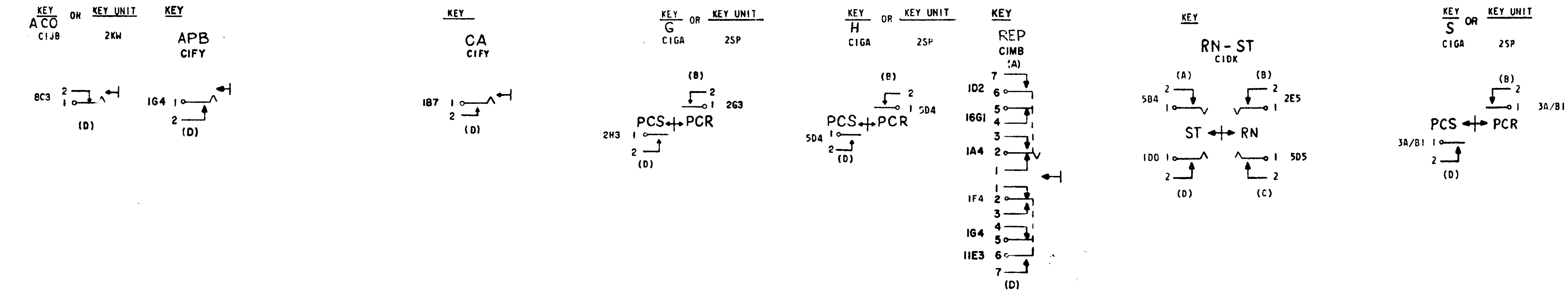
RELAY

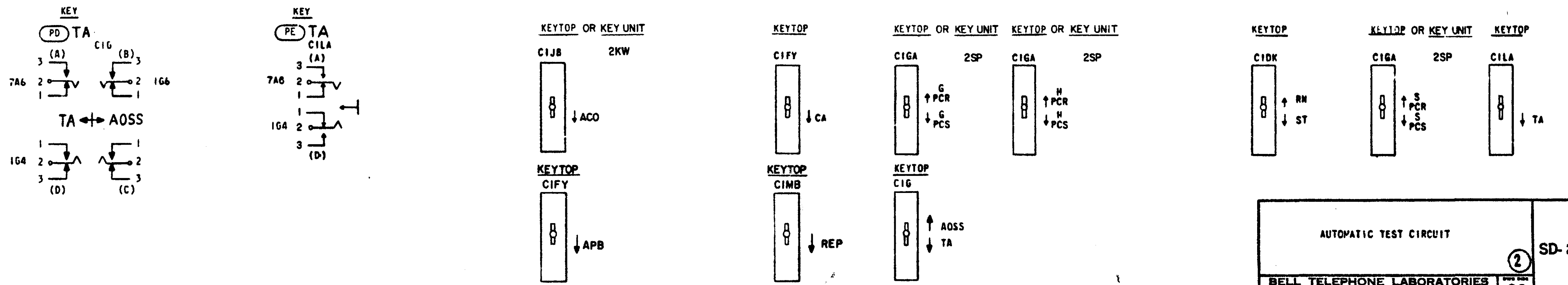
DESIG	PT		RN1		RCP	
CODE	AK39				AF128	
OPTION	OH		OH		RH	
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12			EBM	1A7	EBM	11H0
11			EBM	1A1	EBM	
10					EBM	11G4
9			EMB	1F0		
8			EMB	4B3	EBM	
7						
6					EBM	
5	EMB					
4	EMB	6A3			EBM	11B4
3						
2	EBM	1H3			EBM	10C6
1	M				EBM	10D6
COIL		10E7		5H6		10C7

CAPACITOR

DESIG	LOC	CODE
A	2G7	441C
B	3A/C2	
C	5D1	
D	7F0	

DIODE, LIGHT EMITTING
SEE LAMP





DRAWING ISSUE: 36D, 37D, 41D, 45D, 47D, 48A, 52D, 58D, 61D

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-C2

BELL TELEPHONE LABORATORIES INCORPORATED

6S

PART OF APP FIG.3

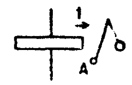
LAMP OR DIODE, LIGHT EMITTING

	DESIG	LOC	CODE
(QJ)	* ALM	7B8	2Y (RED) LAMP OR 552A LED
(QK)	* BPT	42H5	2Y LAMP OR 552B LED
(QM)	* CBY	42H4	2Y (AMBER) LAMP OR 552C LED
	EC	2C5	2Y
	[10] * GROUP 0-9	2A7	(QU) 2Y LAMP OR (QV) 552B LED
	[10] * GROUP 10-19	2C7	(QU) 2Y LAMP OR (QV) 552B LED
	[20] * HOLD 0-19	4E4, G1, H1	(QU) 2Y LAMP OR (QV) 552B LED
(PR)	* ICR	42E9	2Y (RED) LAMP OR 552A LED
	N	5E3	2Y
(QK)	* RPT	42H5	2Y LAMP OR 552B LED
	[10] * SELECT 0-9	3A/E5, G3	(QU) 2Y LAMP OR (QV) 552B LED
(QQ)	SST	44G7	~~M1 (AMBER)~~ 552C LED
	TA	7E6	2Y

* MAY BE REPLACED BY SIMILARLY DESIGNATED LIGHT EMITTING DIODES (SEE NOTE 141)

MESSAGE REGISTER

(YR) 12A
(YS) 14LD
(YT) 14F



	CT	PB	RST
1-A CONT.	1F3	1F3	1D4
COIL	1A5	1G5	1A3

NETWORK

	DESIG	LOC	CODE
(RS)	VT	10D6	185A

RESISTOR

DESIG	LOC	CODE
AA	3A/C2	19EW
AB	5D1	19EW

SELECTOR

DESIG	CODE	OPTION	BANK CODE	ARC 1 TERM	ARC 1 LOC	ARC 2 TERM	ARC 2 LOC	ARC 3 TERM	ARC 3 LOC	ARC 4 TERM	ARC 4 LOC	ARC 5 TERM	ARC 5 LOC	ARC 6 TERM	ARC 6 LOC	STEP MAG LOC	INT CONT LOC
G	206BP		26A	1-22	2E6	23-44	2H6	1-22	2A5	23-44	2C5	1-22	3B/B5	23-44	3B/A5	2F7	2F7
H	206BP		26A	1-22	5A2	23-44	5C2	1-22	5E2	23-44	5G2	1-22	4B0	23-44	4E0	5D0	3A/B3
S	206N		26E	1-22	5G2	1-22	3A/A5	1-22	3A/D1	1-22	1C2					3A/[illegible]	3A/B3
TA	206N		26E	1-22	7D1	1-22	7E1	1-22	7A1	1-22	7G1					7D0	7D1

DRAWING ISSUE: 36D, 37D, 61D

ISSUE 68B

AUTOMATIC TEST CIRCUIT

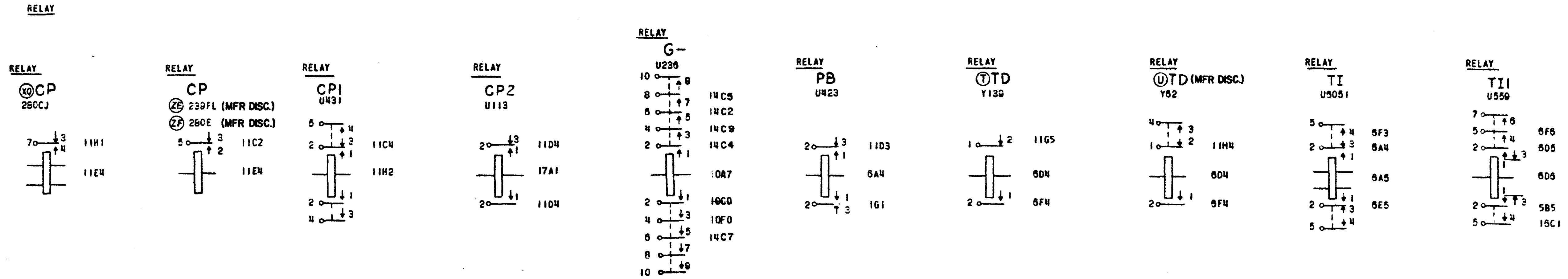
SD-25161-01-C3 (2)

BELL TELEPHONE LABORATORIES INCORPORATED

6S

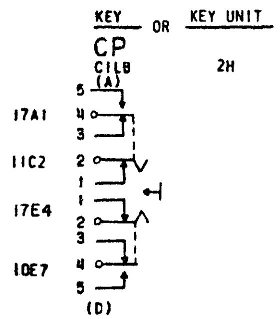
SD-25161-01-C3

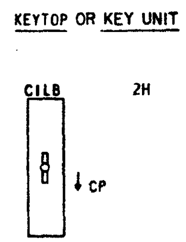
APP FIG.4 (MFR DISC.)



CAPACITOR

DESIG	LOC	CODE
A	1G0	441C





LAMP

DESIG	LOC	CODE
BY	6F2	2Y
CP	11C4	2Y

RESISTOR

	DESIG	LOC	CODE
	A	14B2	18BU
	AA	14B6	18AP
	AB	14B6	18AP
	AC	14F9	18AP
	AD	14E2	18AS
	AE	1G0	18BH
	B	14B2	18BU
	C	14B2	18BU
(XJ)	CP	11F4	40H 24,000±1%
(XK)	CP	11F4	40BU 24,000
	CPR	11E5	19ABC
	D	14E1	18BU
	E	14E1	18BU
	F	14B0	18BG
	G	14B0	18BG
	H	14B0	18BC
	J	14B3	18AP
	K	14B3	18AP
	L	14B4	18AP
	M	14B4	18AP
	N	14B4	18AP
	P	14B5	18AP
	R	14B5	18AP
	R1	14D7	40AL 15,000 ±1%
	S	14B5	18AP
	T	14B5	18AP
	U	14B6	18AP
	V	14B5	18AP
	W	14B7	18AP
	X	14B7	18AP
	Y	14B7	18AP
	Z	14B8	18AP

DRAWING ISSUE: 36D, 37D, 41D, 45D, 47D, 48A, 49D, 52D, 61D

ISSUE 68B

AUTOMATIC TEST CIRCUIT

(2)

SD-25161-01-C4

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-C4

PART OF APP FIG.5

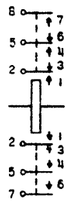
RELAY
206A #B (MFR DISC)
206G

0	1	2	3	4	5	6	7	8	9
15A8									
15A8	15B7	15A6	15B6	15A5	15B4	15A4	15B3	15A2	15B2
15C7	15C7	15C6	15C6	15C5	15C4	15C3	15C3	15C2	15C1

RELAY
208B

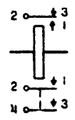
1'	2'	3'	4'	5'	6'	7'	8'	9'
15E7	15E8	15E6	15E5	15E4	15E4	15E3	15E2	15E2
15C7	15C6	15C6	15C5	15C4	15C4	15C3	15C2	15C2

RELAY
U53



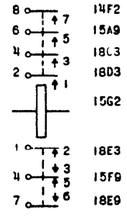
A	IA1
19A1	18F8
18B8	18D4
18C9	15F5
19E1	19C1
18D3	
	15H7
15H1	15F5
18E2	18G7

RELAY
U480



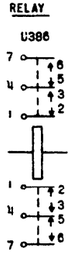
A1	Z0
16E2	18B3
18C9	18C7
18C6	18B3
18C2	18H4

RELAY
A2
U321



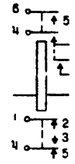
14F2
15A9
18C3
18D3
15G2
18E3
15F9
18E9

RELAY
U386



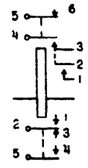
A3	SP3
14E8	
15H5	15H4
19B3	15H0
18D8	18H3
18B6	18H0
18A3	18D1
26D2	18E3

RELAY
A4
U488



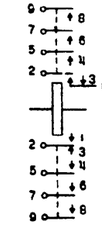
14F1
15H0
15E0
15H0
14E6
20A8

RELAY
AN
U99



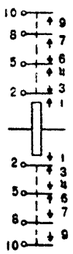
18H6
18F6
19D1
18E5
20C3

RELAY
ANI
U79



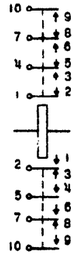
18C1
18D2
15G1
18G8
18G6
19E1
14E3
14F4
18C2

RELAY
BC
U441



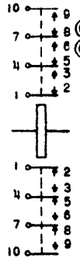
18H3
19C2
19D3
17C6
17E7
19C3
19D3
17E8
10E3

RELAY
BC1
U318



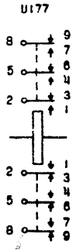
18C3
16B6
16C6
18C7
17E8
16E8
10E2
18D0
10D3

RELAY
U333



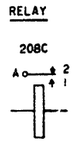
BL	XB
17D8	10F3
(OE) 17E6	14E3
(OF) 14A8	
15H1	14F6
14F2	17E5
17D7	10F2
14E3	18D6
18F6	18G6
10E2	19D4
19A0	
3687	18E6

RELAY
U177



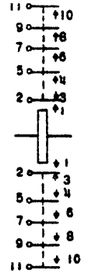
BLI	CI
16H5	16G5
16F5	16A6
16E6	16C5
17D7	17E1
16C6	16D6
16B6	16F6
15H5	17B8

RELAY
208C



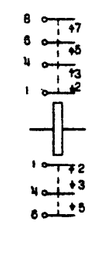
BO'	FO'
18F2	14F6
15C8	15C8

RELAY
U438



C	(VP) C2A
17A7	26E0
15G0	
29B0	
1D0	36H1
16A3	41A/H0
16A5	
17A8	17B8
22C6	1C2
21F6	23B0
17E1	29D0
15B1	17F0
31C0	17H5

RELAY
C2
U308



20A1
18H2
14E0
10F4
17B8
16A6
16A4
6H5

DRAWING ISSUE

36D	TVG WW PPR
BOART	TWF AMC
41D	AJC CLH AW
45D	NLF WW AW
52D	DR WW AW
57A	FBK
61D	

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-C5

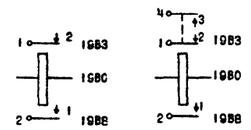
BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-C5

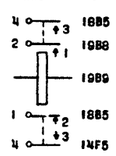
PART OF APP FIG.5

RELAY
(N)FD
U436(MFR DISC)

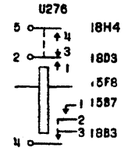


RELAY
(M)FD
U1247

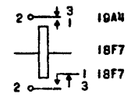
RELAY
FDI
U66



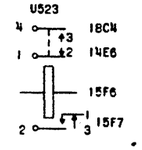
RELAY
IA
U276



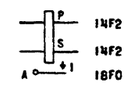
RELAY
IA2
U114



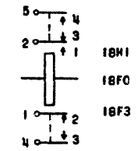
RELAY
IA3
U523



RELAY
MO
B1086

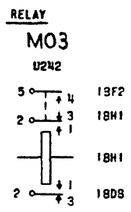


RELAY
MOI
U499

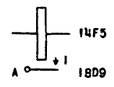


RELAY
U285
MO2 19C8 18H0 19H1
RP4 14F1 16F0 16F2
(X)RPX 15F2 15F4 15G3

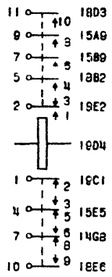
RELAY
MO3
U242



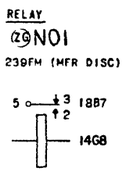
RELAY
MTG
B167



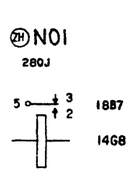
RELAY
NO
U58



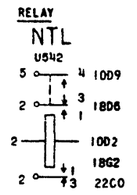
RELAY
(Z9)NOI
239FM (MFR DISC)



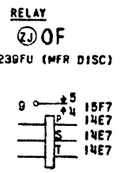
(ZH)NOI
280J



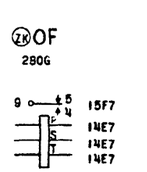
RELAY
NTL
U542



RELAY
(ZJ)OF
239FU (MFR DISC)

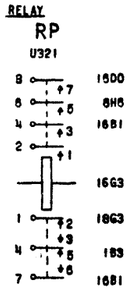


(ZK)OF
280G

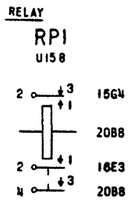


RELAY
U448
OFI 23A6 18B6 15G8 19B4 15F7

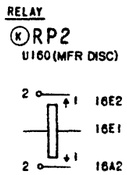
RELAY
RP
U321



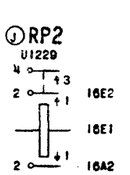
RELAY
RP1
U158



RELAY
(K)RP2
U160(MFR DISC)

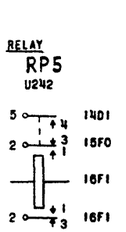


(J)RP2
U1229

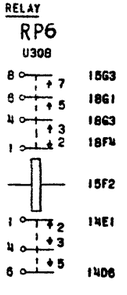


RELAY
U423
RP3 16F1 16E2 15E3
(X)RPY 16G0 15F3 15FN

RELAY
RP5
U242



RELAY
RP6
U308



DRAWING ISSUE
36D
37D
41D
52D
61D

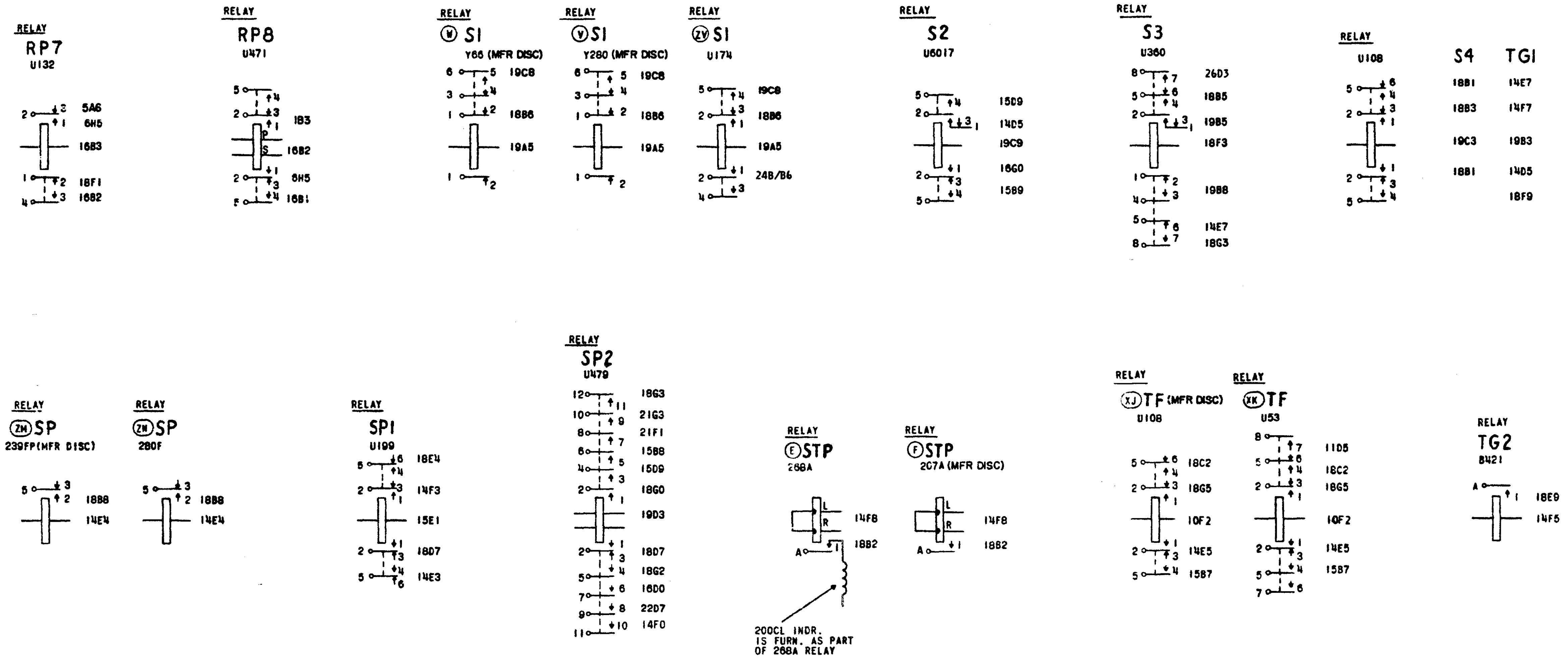
ISSUE 68B

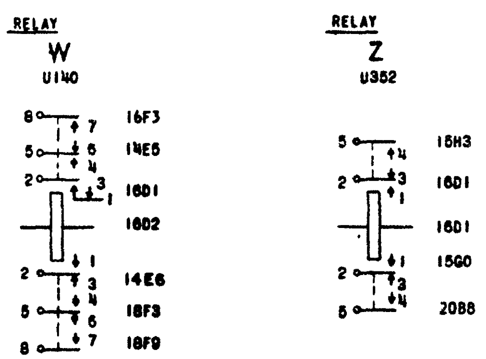
AUTOMATIC TEST CIRCUIT
(2)
SD-25161-01-C6
BELL TELEPHONE LABORATORIES INCORPORATED
SHEET 6S

SD-25161-01-C6

PART OF APP FIG.5

RELAYS





RELAY

DESIG	ESS	
CODE	AF84	
OPTION	SX	
	CONT ARR	LOC
12	EM	
11		
10	M	10G2
9	B	14F1
8	EBM	18D0
7	B	
6	B	
5	BM	
4	M	
3		
2	M	
1	M	15F5
COIL		10F2

CAPACITORS

	DESIG	LOC	CODE
	A	18A3	441C
	B	18B1	441C
	C	18D1	441C
UA	D	14E0	441C
UB	D	14D0	441C
ZR	E	15A1	439A
ZS	E	15A1	439A
ZR	F	15B1	439A
ZS	F	15B1	439A
	G	19A5	441C
	H	18B9	441C
	R	14F2	437A
	T	14E2	437A
UB	TRC	14E0	439QA

JACK

DESIG	LOC	CODE
1B0	16C8	92
1B1	16B8	92
1B2	16B8	92
1B3	16A8	92
1B4	16A8	92
1G0	16E8	92
1G1	16D8	92
1G2	16D8	92
1G3	16C8	92

ISSUE 69AC

AUTOMATIC TEST CIRCUIT

SD-25161-01-C7

BELL TELEPHONE LABORATORIES INCORPORATED

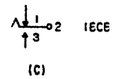
6S

SD-25161-01-C7

PART OF APP FIG.5

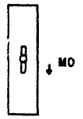
KEY

(ZW) MO
CIEJ



IECE
(C)

KEYTOP
CIEJ



LAMP

	DESIG	LOC	CODE
	A NO	20C0	2Y
	A OPR	20C1	2Y
	ART	16A2	2Y
(QD)	DF	1F9	2Y
	L FO	20C0	2Y
	L OPR	20C0	2Y
	PB	18E0	2Y
(PU)	RP	17H6	2Y

NETWORKS

	DESIG	LOC	CODE
(ZS)	0	15D8	177F
	1	15D7	177F
	2	15D6	177F
	3	15D5	177F
	4	15D5	177F
	5	15D4	177F
	6	15D4	177F
	7	15D3	177F
	8	15D2	177F
	9	15D1	177F

RESISTOR

	DESIG	LOC	CODE
(ZR)	A	15A1	198M
	AA	18A2	18CN
	AB	18D0	18BN
(ZR)	AC	18B1	18BN
	AD	19A5	18AE
	AE	18B9	18BN
(YG)	AF	14E2	18AS
	AN	14E3	40AN 10,000
(ZS)	B	15A1	18F
	BA	16D2	18FY
	BB	16E2	18FY
	BC	14E8	19CC
	BD	18G0	18GY
	BE	19A3	18FY
(ZS)	C	1581	18F
(ZS)	D	15A1	KS-13491, L1, 9100
(ZS)	E	1581	KS-13491, L1, 9100
	FD	14F5	40K, 14,500 ±1%
	RI	14D6	40AL, 15,000 ±1%
	TG	14E5	40K, 14,500 ±1%
(UB)	TRR	14E0	KS-16313, L3A, 909

RESISTOR
FDI
40AT
2T — 2B
P-2000

1T — 1B 14E5
S-11,000

RESISTOR
RP
40AU
2T — 2B
P-2000 ±1%

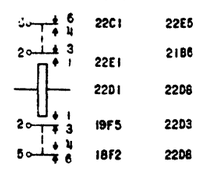
1T — 1B 14D1
S-8400 ±1%

SELECTOR

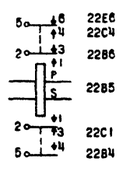
DESIG	CODE	OPTION	BANK CODE	ARC 1 TERM.	ARC 1 LOC	ARC 2 TERM.	ARC 2 LOC	ARC 3 TERM.	ARC 3 LOC	ARC 4 TERM.	ARC 4 LOC	STEP MAG. LOC	INT CONT LOC
TST	206N		26E	1-22	16A4	1-22	20A1	1-22	18A4	1 2-22	1785 19A2	18A3	18A3

PART OF APP FIG.6

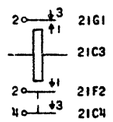
RELAY
U199 AVI SYI



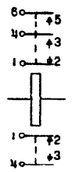
RELAY
AV2
U145



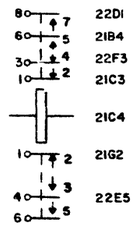
RELAY
EP
U180



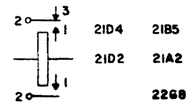
RELAY
(UN) EPI
U72



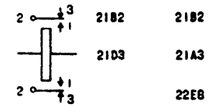
RELAY
(UP) EPI
U334



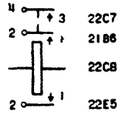
RELAY
U422 S0 S02



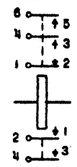
RELAY
U423 S01 S03



RELAY
SW
(G) U1228
(H) U156 (MFR DISC)



RELAY
SWI
U320



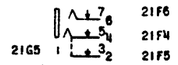
RELAY
SY
(ZP) 239FC (MFR DISC)
(ZQ) 280A

CAPACITOR

DESIG	LOC
A	21E4
B	22B2
C	21C2
D	21F3

CODE
.41A, 1 UF
.41C, 0.5 UF
.41C, 0.5 UF
.370A, 25.68 UF MIN
26.16 UF MAX

JACK
SY
242C OR 242CM



LAMP

DESIG	LOC	CODE
EP	22D8	2Y

DRAWING ISSUE

36D	EVG
45D	NLF
47D	NLF
48A	
52D	
55D	JEK
58D	

ISSUE 68B

AUTOMATIC TEST CIRCUIT
(2)
BELL TELEPHONE LABORATORIES INCORPORATED
6S
SD-25161-01-C8

SD-25161-01-C8

PART OF APP FIG.6

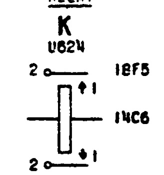
RESISTOR

DESIG	LOC	CODE
A	21E3	18DA
AA	22B2	18CN
AB	21C2	18BH
B	21F4	19MG
BA	21G1	13AP
C	21F4	18BG
SY	21F3	40AP

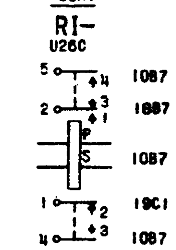
SELECTOR

DESIG	CODE	OPTION	BANK CODE	ARC 1 TERM	ARC 1 LOC	ARC 2 TERM	ARC 2 LOC	ARC 3 TERM	ARC 3 LOC	ARC 4 TERM	ARC 4 LOC	STEP MAG LOC	INT CONT LOC
SP	206N		26E	1-22	22C3	1-22	22B7	1-22	22E2	1-22	22E7	22C2	22C3

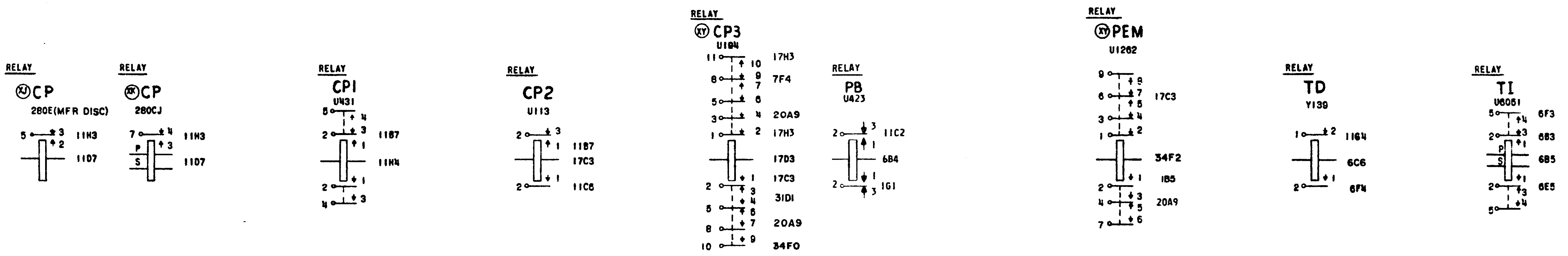
APP FIG. 7 (MFR DISC)



APP FIG. 8 (A & M ONLY)

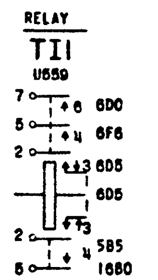


APP FIG. 9



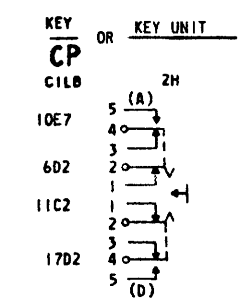
CAPACITOR

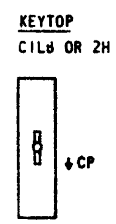
OPT	DESIG	LOC	CODE
	A	1G0	441B

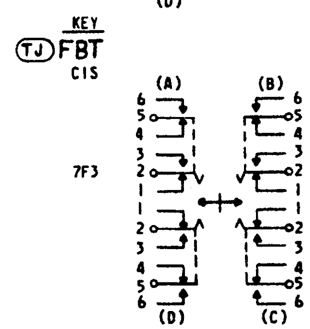


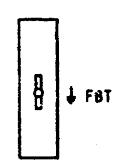
RELAY

DESIG	CP3		PEM			
CODE	AJ5		AK4			
OPTION	OH		OH		OH	
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12	EBM				M	
11	EBM	7F4			EBM	
10	EBM	20A9			EBM	
9	EBM	20A9			EMB	
8	EBM	17H3			EMB	
7	EBM	17H3				
6	EBM					
5	EBM		EMB	17C3		
4	EBM	17C3	EMB	20A9		
3	EBM	31D1	EBM			
2	EBM		EBM			
1	EBM	34F0	M	1B5		
COIL		17D3		34F2		









LAMPS

DESIG	LOC	CODE
BY	6F2	2Y
CP	11A7	2Y

NETWORK

OPT	DESIG	LOC	CODE
XY,OH	PEM	34F2	185A

RESISTORS

DESIG	LOC	CODE
AE	1G1	18BH
(XJ) CP	11F6	40M
(XK) CP	11F5	40BU
(XK) CPR	11D7	19ABC
(YJ) TI1	6B6	16BH
(YK) TI1	6D6	18BH

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-C9

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-C9

APP FIG. 10

RESISTOR

DESIG	LOC	CODE
A	1N82	18BU
AA	1N88	18AP
AB	1N88	18AP
AC	1N88	18AP
B	1N82	18BU
C	1N82	18BU
D	1N81	18BU
E	1N81	18BU
F	1N80	18BG
G	1N80	18BG
H	1N80	18BD
J	1N83	18AP
K	1N83	18AP
L	1N84	18AP
M	1N84	18AP
N	1N84	18AP
P	1N85	18AP
R	1N85	18AP
S	1N85	18AP
T	1N86	18AP
U	1N86	18AP
V	1N86	18AP
W	1N87	18AP
X	1N87	18AP
Y	1N87	18AP
Z	1N88	18AP

APP FIG. 11 (A & M ONLY)

RELAY

G-
U236

10	9	8B/G0
8	7	14C5
6	5	14C2
4	3	14C8
2	1	14C3
		10A7
1	2	10C0
3	4	10E0
5	6	14C7
7	8	18E7
9	10	6E2

APP FIG. 12

RELAYS

RELAY
AV
U104

8	7	1D3
5	6	11A7
3	4	11G7
1	2	19G6
1	2	25A0
3	4	19G8
6	5	19G5

RELAY
CA5
U143

5	4	
2	3	
	1	1D6
1	2	6E5
4	3	1E5

RELAY
MDP
U651

10	9	17C4
7	8	17C6
4	6	17D6
1	5	17E5
	3	
	2	34A0
1	2	11E6
3	4	4B3
6	5	1D5
9	7	34B0
	8	

RELAY
U502

5	6	
2	4	
	3	
	1	
2	3	
5	4	
	6	

PC	PC1	PC2	PC3	PC4
	31G1		19F8	19F7
19F2	19F2	19F3	19F3	
19G1	19G1	19G2	19G3	19FN
	19H2	19H2	19H3	19HN
19H1	19H2	19H3	19H3	19H3

RELAY
SP4
U794

12	11	31A2
10	9	21F1
8	7	20C2
6	5	19F6
4	3	19HN
1	2	6C7
		19G8
1	2	1D3
4	3	21F3
6	5	22D7
8	7	
10	9	23F0
12	11	11G3

RELAY
SP6
U520

4	3	
1	2	1D3
		19F9
1	2	8E7
4	3	19G5

RELAY
SP7
U500

8	7	19HN
5	6	
2	4	19H0
	3	
	1	34D8
2	1	
5	3	19F7
	4	19F0
	6	

RELAY
TC
U1073

12	11	6B1
9	10	11A6
7	8	
5	6	
2	4	
	3	17E5
		17E4
2	3	17E5
5	6	
8	7	
11	9 10	11G7

CAPACITOR

OPT	DESIG	LOC	CODE
	MR	12D6	441R
	MT	12B7	441B
	T2	12C3	439A
WJ	T3	12C2	439A
WK	T3	12C2	475C

DIODE

OPT	DESIG	LOC	CODE
PP	CA5	1E6	446F

NETWORK

OPT	DESIG	LOC	CODE
RS	MDP	34A0	185A
RS	PC	19G1	
RS	PC1	19G1	
RS	PC2	19G2	
RS	PC3	19G3	
RS	PC4	19F4	
RS	SP4	19G8	
RS	SP7	34D8	
RS	TC	17E4	

RESISTOR

OPT	DESIG	LOC	CODE
	CP1	11F7	40H,24,00G

TRANSFORMER

OPT	DESIG	LOC	CODE
WJ	TST	12C3	94H (REP COIL)
WK	TST	12C3	120D (REP COIL)

DRAWING ISSUE

36D	T.V.C. K.A.
37D	R.L. K.M. A.M.
39AR	J.L.R. T.H.B. A.M.
41D	A.E. C.L.Y. A.M.
45AC	J.S.S. G.M. A.M.
48A	R.L. A.E. A.M.
52D	P.V.S. A.E. A.M.
60D	
61D	

ISSUE 68B

AUTOMATIC TEST CIRCUIT

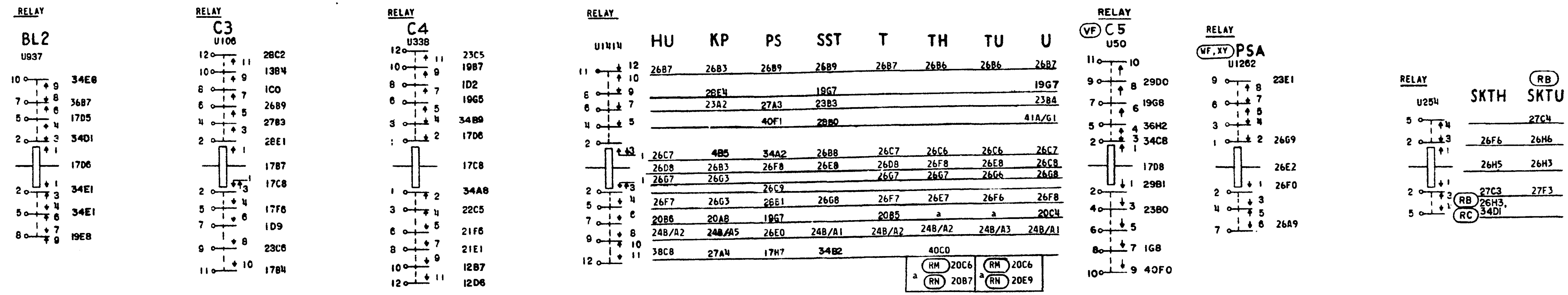
BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-C10 (2)

6S

SD-25161-01-C10

APP FIG. 13



RELAY

DESIG	ADG		BDG		CDG		4DG		5DG		7DG		6DG		TU1	
CODE	AJ15		AJ15		AJ15		AJ5		AJ5		AJ5		AK6			
OPTION	RC		RC		RC		RC		RC		RC		PX		PL	
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12	EBM		EBM	26H8	EBM	26H9	EBM	26H5	EBM		EBM				BM	17G1
11	EBM	26B4	FBM	26B4	EBM	26B5	EBM		EBM		EBM				BM	
10	EBM		EBM	19C3	EBM	19C4	EBM	17F0	EBM	27C6	FBM	26G2			BM	
9	EBM	24B/A4	EBM	24B/A4	EBM	24B/A3	EBM		EBM		EBM	26F3			BM	
8	EMB		EMB		EMB		EBM		EBM		EBM				BM	38D8
7	EBM	19A3	EBM	19B3	EBM	17G1	EBM	27D4	EBM	27D6	EBM	27D6				
6	EMB	15F2	EMB		EMB		EBM		EBM		EBM					
5	EMB	26D4	EMB	26D4	EMB	26D5	EBM	24A4	EBM	26B0	EBM	26C0	BM	26E4		
4	EBM	20D7	EBM	20D6	EBM	20D5	EBM		EBM		EBM		BM	26D0		
3	EBM	16E3	EBM		EBM	38C8	EBM	24B4	EBM		EBM	26D0	BM			
2	EBM	26G4	EBM	26G5	EBM	26G5	EBM	17E0	EBM	26F5	EBM	17E0	BM	26B0		
1	EBM	16F1	EBM		EBM	17F1	EBM	24C4	EBM		EBM	26A1	BM	41A/H1		
COIL		26E5		26D5		26D5		26H1		26A2		41B6		41A/H1		26A6

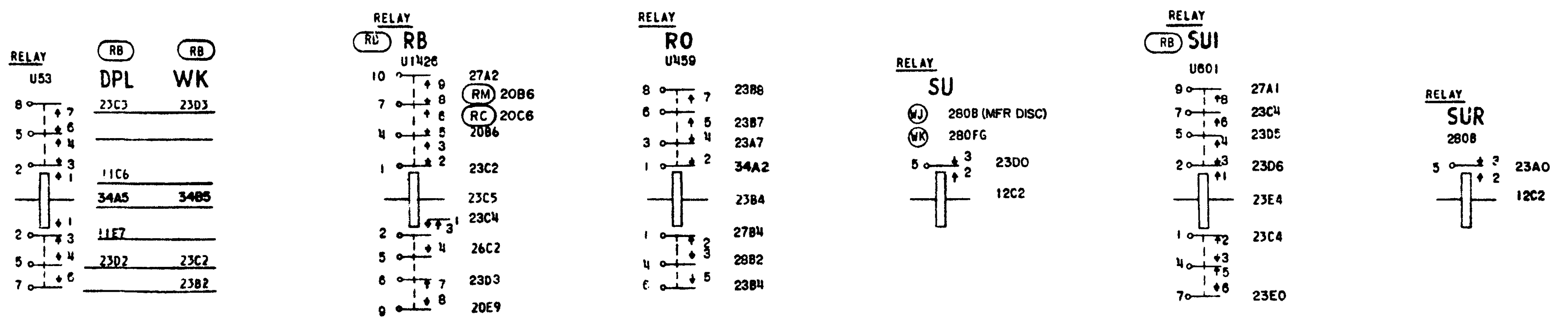
LAMP

OPT	DESIG	LOC	CODE
	4D	26G2	2Y
RC	5D	26B0	2Y
PX	6D	26D0	2Y
RC	7D	26C0	2Y

NETWORK

OPT	DESIG	LOC	CODE
RC	ADG	26E5	185A
RC	BDG	26D5	
RS	BL2	17D6	
RS	C3	17B7	
TG	C4	17C8	
RC	CDG	26D5	
RS	HU	26D8	
RS	KP	26B3	
RS	PS	26F8	
RS	SKTH	26H5	
RS	SST	26E8	
RS	T	26D8	
RS	TH	26E8	
RS	TU	26E8	
PL	TU1	26A6	
RS	U	26C8	
PX	6DG	41A/H1	

APP FIG.14



RELAY

DESIG	DPL		WK		RB		SU1	
CODE	AK4				AJ15		AJ15	
OPTION	RC				RC		RC	
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12			M	23C2	EBM	40D1	EBM	
11			EBM	23D3	EBM	41A/H0	EBM	
10			EBM		EBM	27A2	EBM	27A1
9			EMB		EBM	23D3	EBM	23E0
8			EMB		EMB		EMB	
7					EBM		EBM	
6					EMB		EMB	23C4
5	EMB				EMB	23C4	EMB	
4	EMB	11C6			EBM	26C2	EBM	23D5
3	EBM	11E7			EBM		EBM	
2	EBM	23D2			EBM	20C6	EBM	23D6
1	M	23C3			EBM	23C3	EBM	23C4
COIL		35A4		35B5		23C5		23E4

NETWORK

OPT	DESIG	LOC	CODE
RS	RB	23C5	185A
RS	SU1	23E4	

DRAWING ISSUE: 36D, 37D, 41D, 43AC, 44AR, 45D, 51A, 52D, 55D, 56A, 58D, 61D

ISSUE 68B

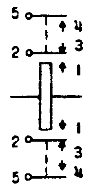
AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-C11 (2) 6S

APP FIG. 15

RELAY U6030



	(RB) DC0	(RB) DC1	(RB) DC2	(RB) DC3	(RB) DC4	(RB) DC5	(RB) DC6	(RB) DC7	(RB) DC8	(RB) DC9	(RB) KP1	(RB) STC
	25A9	25A5	25A5	25A4	25A6	25A6	25A8	25A8	25A7	25A8	25A7	
	12F3	12F4	12F4	12F5	12F5	12F6	12F6	12F7	12F7	12F8	12F3	12F8
	24A8	24A8	24A8	24A8	24A8	24A8	24A8	24A8	24A8	24A8	24B/B5	24B/CO
	12H3	12H4	12H4	12H5	12H5	12H6	12H6	12H7	12H7	12H8	12H3	12H8

RELAY

DESIG	KP1		STC	
CODE	AK6			
OPTION	RC			
	CONT ARR	LOC	CONT ARR	LOC
12			BM	12F9
11			BM	12G8
10			BM	
9			BM	17F1
8			BM	40B1
7				
6				
5	BM	26E3		
4	BM	24B/E5		
3	BM	25A7		
2	BM	12H3		
1	BM	12F3		
COIL		24B/B5		24B/CO

NETWORK

	DESIG	LOC	CODE
(RS)	DC(0-9)	24B8	185A
	KP1	24B/B5	
	STC	24B/CO	

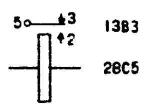
RELAY

DESIG	DC0		DC1		DC2		DC3		DC4		DESIG
CODE	AK6				AK6				AK6		CODE
OPTION	RC		RC		RC		RC		RC		OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12			BM	12F4			BM	12F5			12
11			BM	12H4			BM	12H5			11
10			BM	25A5			BM	25A4			10
9			BM	38A3			BM	38A3			9
8			BM	39B1			BM	39D1			8
7											7
6											6
5	BM				BM	39F1			BM	39C1	5
4	BM	38A4			BM	38A3			BM	38A3	4
3	BM	25A9			BM	25A5			BM	25A6	3
2	BM	12H3			BM	12H4			BM	12H5	2
1	BM	12F3			BM	12F4			BM	12F5	1
COIL		24B8		24B8		24B8		24B8		24B8	COIL

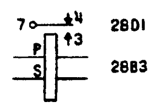
DESIG	DC5		DC6		DC7		DC8		DC9		DESIG
CODE			AK6				AK6				CODE
OPTION	RC		RC		RC		RC		RC		OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12	BM	12F6			BM	12F7			BM	12F8	12
11	BM	12H6			BM	12H7			BM	12H8	11
10	BM	25A6			BM	25A8			BM	25A8	10
9	BM	38A2			BM	38A2			BM	38A1	9
8	BM	39F1			BM	39E1			BM	39C1	8
7											7
6											6
5			BM	39A1			BM	39D1			5
4			BM	38A2			BM	38A1			4
3			BM	25A7			BM	25A7			3
2			BM	12H6			BM	12H7			2
1			BM	12F6			BM	12F7			1
COIL		24B8		24B8		24B8		24B8		24B8	COIL

APP FIG. 16

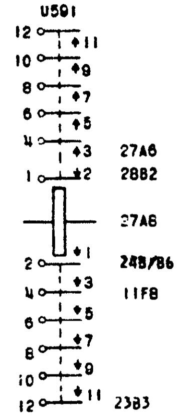
RELAY P 280AR



RELAY PG 280AN



RELAY SG U591



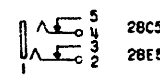
CAPACITOR

DESIG	LOC	CODE
PG	28C2	439QA,[5] 437QA

RESISTOR

DESIG	LOC	CODE
[2] BJ1,2	28C1	18JC

JACK ADJ 239C OR 239CM



JACK

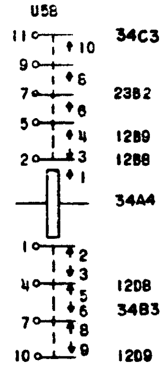
DESIG	LOC	CODE
P	13B4	242C OR 242CM
PG	28B1	242C OR 242CM

NETWORK

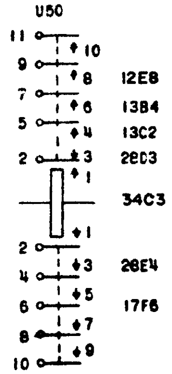
	DESIG	LOC	CODE
(P)	SG	27A8	185A

PART OF APP FIG. 17

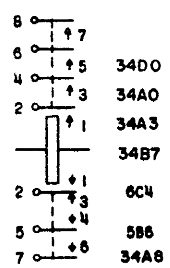
RELAY MF U58



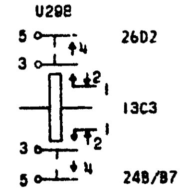
RELAY MF1 U50



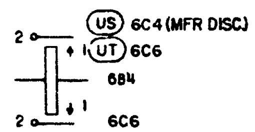
RELAY MFC U120



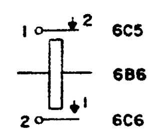
RELAY PGA U298



RELAY TD1 Y63



RELAY (UT) TD2 Y139



CAPACITOR

DESIG	LOC	CODE
MF	28D2	439QA

DRAWING ISSUE
36D
37D
41D
49D
52D
58D

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-C12

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-C12

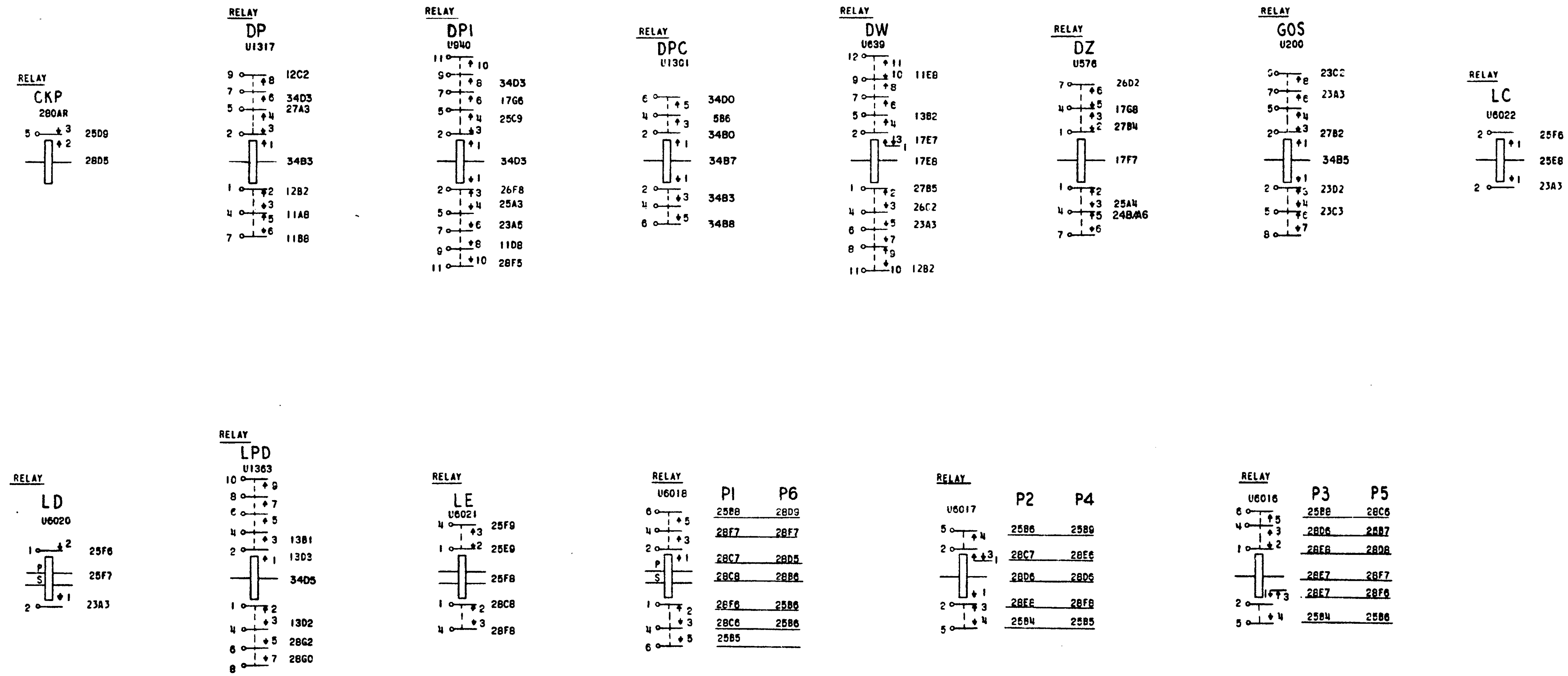
PART OF APP FIG. 17

LAMP DESIG	LOC	CODE
MF	54CO	-Y

NETWORK DESIG	LOC	CODE
PGA	13C3	177E

RESISTORS DESIG	LOC	CODE
(RQ) BK	12C8	18BD
BL	28D3	18AE
BM	28E4	1GRM
BN	28E2	1GGT
BO	28E2	10SC
BP	28E3	19JB
BQ	28E4	19CU
BR	28E1	19LY
(YZ) SF	12C8	18FB

PART OF APP FIG. 18



DRAWING ISSUE
36D
37D
41D
45D
58D
60D

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)

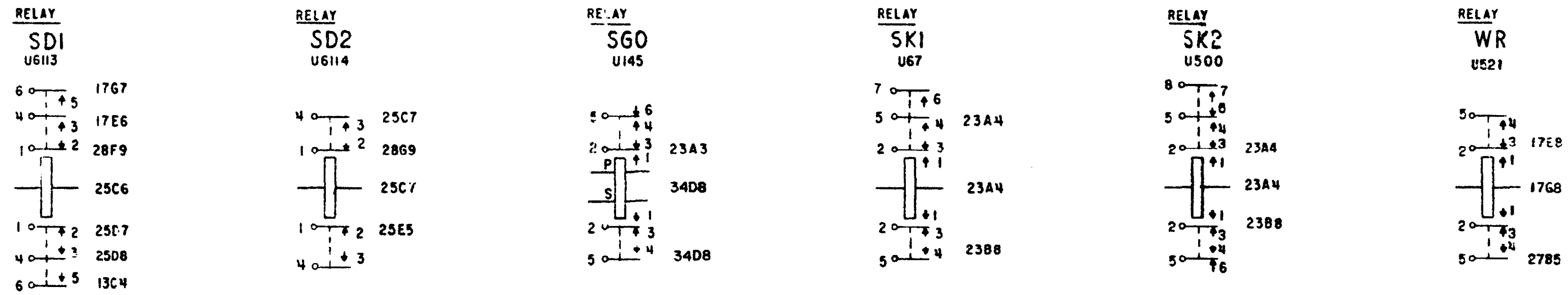
SD-25161-01-C13

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-C13

PART OF APP FIG. 18



CAPACITOR

DESIG	LOC	CODE
*LPD	13D2	43GA

DIODE

DESIG	LOC	CODE
(SS) SUR	12D2	446F

JACK

DESIG	LOC	CODE
CKP	25C9	242C OR 242CM

LAMP

DESIG	LOC	CODE
DP	34C0	2Y

NETWORK

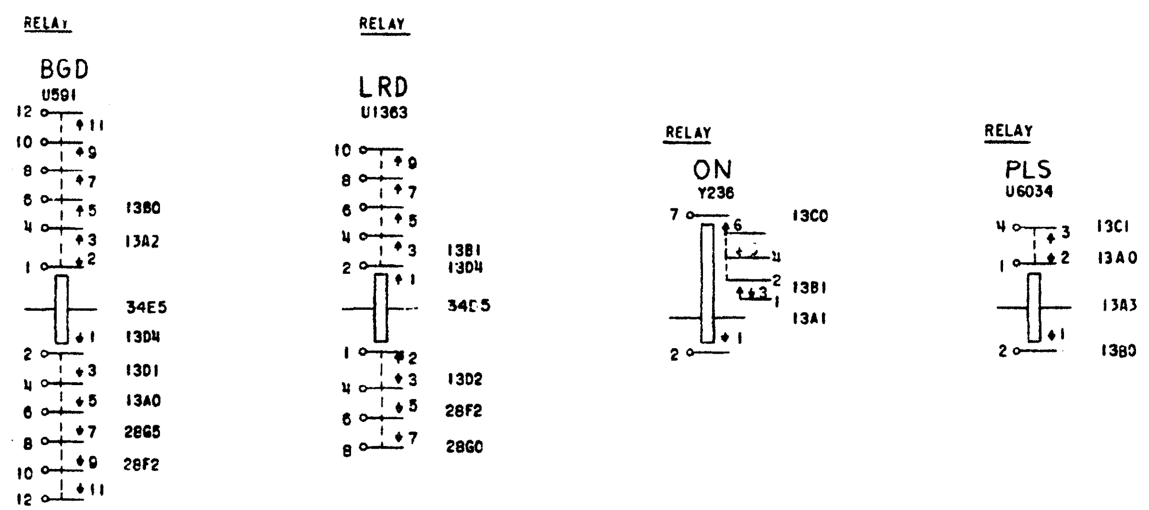
DESIG	LOC	CODE
(RS) DP1	34D3	185A
DW	17F8	185A
DZ	17G7	185A
LD	25F7	185A
LE	25F9	177C
(RS) LPD	34D5	185A
P0	28D8	177G
P1	28D8	185A
P2	28D6	185A
P3	28E7	185A
P4	28E6	185A
P5	28F7	185A
P6	28C6	185A
P7	28B5	177G
SD1	25C6	177H
SD2	25C7	177H
WR	17H8	185A

RESISTOR

DESIG	LOC	CODE
BS	28F1	18FU
BT	28F3	18GD
BU	28HC	18M
BV	28H1	18M
BW	28H2	18M
BX	28H2	18M
BY	28H3	18K
BZ	28H3	18GD
CA	25C7	18AG
CB	25C7	18AG
CC	17F8	18AG
LC	25F5	KS-13491,L2, 1 MEG
*LPD	13D2	18AE

NOTE:
*PART OF CONTACT PROTECTION

APP FIG. 19



NETWORK

DESIG	LOC	CODE
(RS) BDG	34E5	185A
LRD	13D2	177C
(RS) LRD.1	34E5	185A
ON	13A1	177H
PLS	13A3	177H
R	13D1	177G
T	13C0	177G

RESISTOR

DESIG	LOC	CODE
CD	28E1	18FU
CE	28E2	18GY
CF	28H4	18FG
CG	28H4	18BW
CH	13B1	18FD
CJ	13C0	18FD
CK	13D3	18CT

ISSUE 65A

AUTOMATIC TEST CIRCUIT (2)

BELL TELEPHONE LABORATORIES INCORPORATED

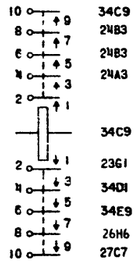
SD-25161-01-C14

6S

SD-25161-01-C14

APP FIG. 20

RELAY
TT3
U236

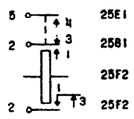


LAMP

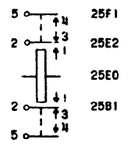
DESIG	LOC	CODE
3D	34C1	2Y

APP FIG. 21 (MFR DISC)

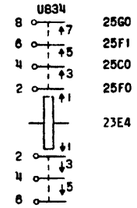
RELAY
DL
U168



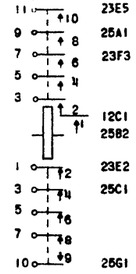
RELAY
DL1
U254



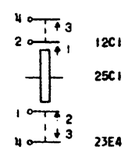
RELAY
RF
U834



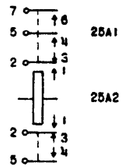
RELAY
RF1
U810



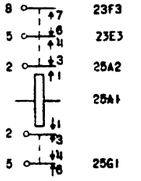
RELAY
RF2
Y311



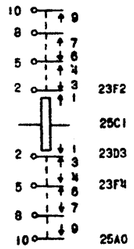
RELAY
RF3
U67



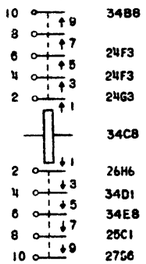
RELAY
RF4
U500



RELAY
RFC
U1113



RELAY
TR3
U236



LAMP

DESIG	LOC	CODE
3DR	34C1	2Y
RF1	25G2	2Y
RF2	25G2	2Y

RESISTOR

DESIG	LOC	CODE
DL	25F2	18AC
RF2	25D1	18DH
RFH	12D1	18CR
RFT	12C1	18CR

DRAWING ISSUE
36D
41D
48A
52D
58D

ISSUE
63B

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-C15

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

SD-25161-01-C15

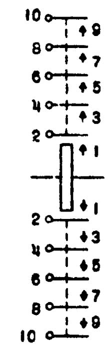
APP FIG. 22

SWITCH

DESIG	CONN SW	
CODE	328F	
OPTION		
LEVEL	WIRE	LOC
0-9	0	6A0
	1	11G1
	2	11B1
	3	6C0
	4	10B6
	5	9D4
MAG	HOLD	4E4
	SEL	3A/E6, G3
SEL O.N. CONT	0-9	3A/G4
HOLD O.N. CONT	0-19	-

APP FIG. 23

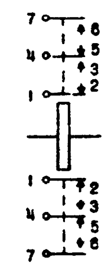
RELAY
U236



	BL4	TL4
10–9	24H3	24H5
8–7	24H3	24H5
6–5	24H3	24H5
4–3	24H3	24H5
Winding	34D2	34E2
4–3	26G0	26H0
6–5	23G3	23G2
8–7	26H0	26H0
10–9	27E8	27F8

APP FIG. 24

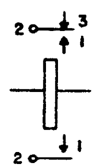
RELAY
[10] OI (0-9)
U386



LAMP DESIG	LOC	CODE
(RB) [10] OI (0-9)	26G1	2Y

APP FIG. 25

RELAY
(UR) RBT
U113



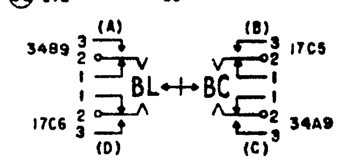
CORD

DESIG	LOC	CODE
TC	12C7	2W32A

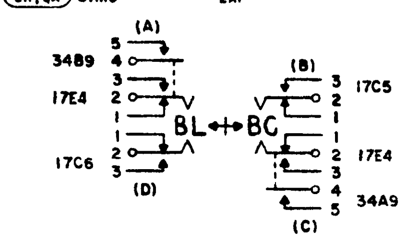
JACK

DESIG	LOC	CODE
T	12C7	215A OR 215CM

KEY OR KEY UNIT
(UQ) C1G   2C



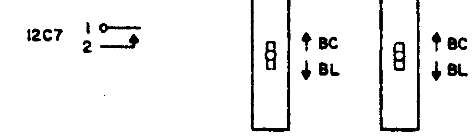
KEY OR KEY UNIT
(UR, QA) C1MJ   2AP



KEY
(WW) L
547A

KEYTOP
(UQ) C1G OR 2C

KEYTOP
(UR) C1MJ OR 2AP



LAMP

	DESIG	LOC	CODE
(RN)	A OR OB	20D8	2Y
(RN)	B OR OG	20D8	2Y
(RN)	C OR IB	20D8	2Y
	FT OR T	20B5	2Y
	FU OR U	20B4	2Y
	H OR FB	20B6	2Y
(RN)	IG OR TH	20C7	2Y
(RN)	KP OR TG	20A6	2Y
	MO	18G0	2Y
(RM)	OB OR IB OR TU	20B9	2Y
	OF	23A6	2Y
(RM)	OG OR IG OR TH	20B7	2Y
(RM)	OT OR KP OR TG	20A7	2Y
(RM)	PS	26E2	2Y
	SR OR TST	20B2	2Y
(UR)	RA	1C8	2Y

RECEIVER, SINGLE HEADSET

DESIG	LOC		CODE
TH	12C7	(ZC)	528
		(ZD)	716E

VARISTOR

	DESIG	LOC	CODE
(ZC)	A	12C7	4A OR 33A
(ZD)	A	12C7	33LR

DRAWING ISSUE	
36D	
37D	
41D	
47D	
48A	
49D	
55D	
58D	
61D	

ISSUE 68B

AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

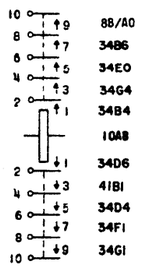
(2) SD-25161-01-C16

CS

SD-25161-01-C16

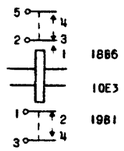
APP FIG. 26 (A & M ONLY)

RELAY
DM–
U236



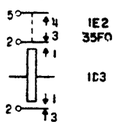
APP FIG. 27

RELAY
RI–
U260

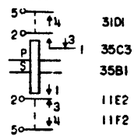


APP FIG. 28

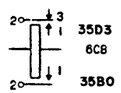
RELAY
2WR
U162



RELAY
CTT
L896



RELAY
STT
U422



CAPACITOR

DESIG	LOC	CODE
CA1	35F2	4410A
CA2	35F3	4410P

RESISTOR

	DESIG	LOC	CODE
XR	2W	35F1	145A 1.05 MEG ± 1%
W2	2W1	35E2	KS-13490,L1 10,000 ± 5%
	2W2	35D2	KS-13490,L1 0.1 MEG ± 5%
	2W3	35F1	145A 2.46 MEG ± 1%
XS	2WA	35G1	140A 0.866 MEG ± 1%
	2WB	35G2	KS-13790,L30 1 MEG

SOCKET, ELECTRON TUBE

DESIG	LOC	CODE
TH	35B2	1438

TUBE, ELECTRON

DESIG	LOC	CODE
TH	35B2	313CC

DRAWING ISSUE

	TYPE
36D	
37D	
41D	
48A	
52D	
58D	
60D	
61D	

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-C17

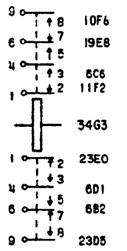
BELL TELEPHONE LABORATORIES INCORPORATED

DRAWING SIZE 6S

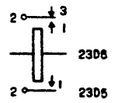
SD-25161-01-C17

APP FIG. 29

RELAY
2W
U1307



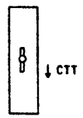
RELAY
SUL
U899



KEY
CTT
CILB
(A)

KEYTCP

CILB



RESISTOR

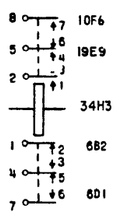
DESIG	LOC	CODE
SP	23E6	18AC

NETWORK

OPT	DESIG	LOC	CODE
RS	2W	34G3	185A
RS	SUL	23D6	185A

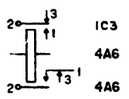
APP FIG. 30

RELAY
2WS
U457

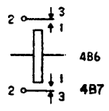


APP FIG. 31

RELAY
WC
U497



RELAY
ZC
U580

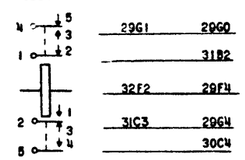


RESISTOR

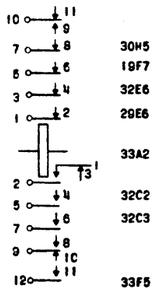
DESIG	LOC	CODE
WC	4A7	18FY
ZC	4A7	18FY

PART OF APP FIG. 32

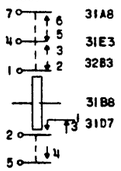
RELAY
U234
ALI ⓂRS



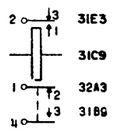
RELAY
ALM
U1421



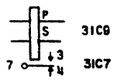
RELAY
FSI
U607



RELAY
FS2
U814



RELAY
FT
280A



DRAWING ISSUE

36D	
37D	
41D	
45D	
56A	
61D	

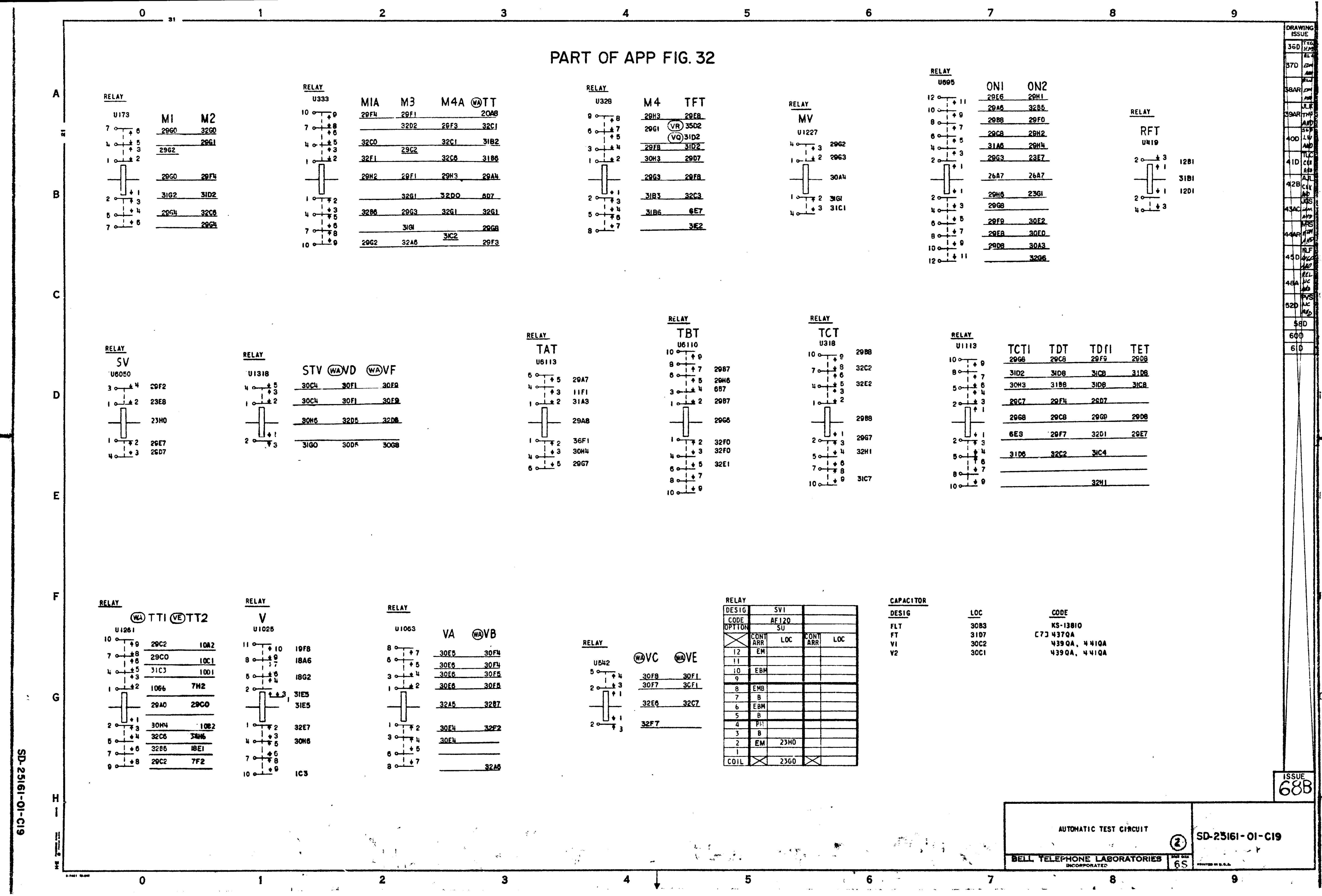
ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-C18

SD-25161-01-C18



PART OF APP FIG. 32
RELAY U173 M1 M2
RELAY U333 M1A M3 M4A WA TT
RELAY U328 M4 TFT
RELAY MV U1227
RELAY U695 ON1 ON2
RELAY RFT U419
RELAY SV U6050
RELAY U1318 STV WA VD WA VF
RELAY TAT U6113
RELAY TBT U6110
RELAY TCT U318
RELAY U1113 TCT1 TDT TDT1 TET
RELAY WA TT1 VE TT2 U1261
RELAY V U1025
RELAY U1063 VA WA VB
RELAY U642 WA VC WA VE
CAPACITOR DESIG LOC CODE
FLT 30B3 KS-13810
FT 31D7 437QA
V1 30C2 439QA, 441QA
V2 30C1 439QA, 441QA
DRAWING ISSUE
ISSUE 68B
AUTOMATIC TEST CIRCUIT
BELL TELEPHONE LABORATORIES INCORPORATED
SD-25161-01-C19
SD-25161-01-C19

PART OF APP FIG. 32

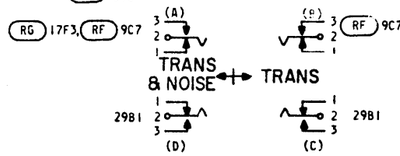
INDUCTOR

DESIG	LOC	CODE
FLT	3080	221G

KEY

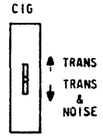
WA C1G

RG 17F3, RF 9C7



KEYTOP

WA C1G



LAMP

DESIG	LOC	CODE
CHT	32E3	2Y
DAR	32C3	2Y
FS1	32B3	2Y
FS2	32A3	2Y
HIT	32E3	2Y
RF1	32C3	2Y
RF2	32D3	2Y
SFL	32B3	2Y
SV	23E8	2Y

NETWORK

DESIG	LOC	CODE
ALI	32G2	185A
RS FS1	31B8	
FS2	31C9	
M1	29G0	
M2	29G4	
NV	30A4	
RS RFT	31B1	
WA RS	29F4	
STV	30H6	
RS SV	23H0	
SV1	23G0	
TAT	29A7	
TBT	29G6	
TCT1	29G8	
RS TDT	29C8	
TDT1	29G9	
TET	29D8	
VA	32B5	
VB	32B7	
VC	32F6	
WA VD	32D5	
VE	32C7	
VF	32E7	

RESISTOR

DESIG	LOC	CODE
AK	30D1	19WK
AL	30C6	19WK
AW	30D3	18AG
AZ	30A2	18AT
BA	29A8	18AG
BB	29G6	18AG
FT	31C8	19CU
FT1	31D7	18FD
G1	30E7	144A
G2	30D7	144A
G3	30D6	144A
WA G4	30D4	144A
WA G5	30E8	144A
G6	30E1	144A
G7	30E2	144A
WA G8	30E1	144A
WA G9	30D5	144A
G10	30D9	144A
GV	30G2	19RP
GV1	30C0	18KF
GV2	30C2	18KF
RFR	12D0	18CR
RFT	12B0	18CR
V1	30B1	144A
V2	30B1	144A
VA	30B5	KS-13490,L3,
VB	30B6	KS-13490,L3

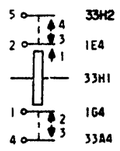
TUBE, ELECTRON

DESIG	LOC	CODE
V1	30C1	407A
V2	30B6	407A

APP FIG. 33

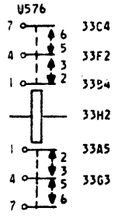
RELAY

R1
U499

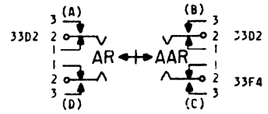


RELAY

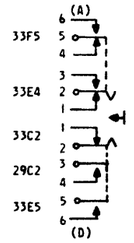
R2
U576



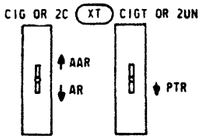
KEY C1G OR **KEY UNIT** 2C



KEY XT PTR C1HT **KEY UNIT** 2UN



KEYTOP C1G OR 2C XT **KEYTOP** C1GT OR 2UN



MESSAGE REGISTER 14F

	FFT	XT FST
1-A CONT	1F4	1E3
COIL	33A4	33E4

WORN DRAWING REPRODUCED WITHOUT CHANGE

68B

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-C20

BELL TELEPHONE LABORATORIES INCORPORATED

6S

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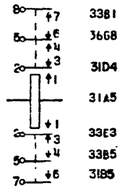
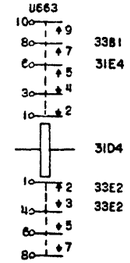
APP FIG. 34

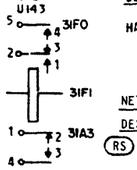
RELAY
HAD
U351



RELAY
PRP
U663



RELAY
SSK
U143

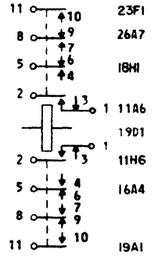


LAMP DESIG	LOC	CODE
HAD	3385	2Y

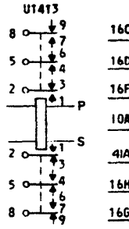
NETWORK DESIG	LOC	CODE
(RS) HAD	3IA5	16?A

APP FIG. 35

RELAY
(VH) TCV
U1324

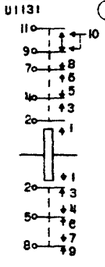


RELAY
(VH) TN1 (VH) TN2 (VH) TN3
U1413



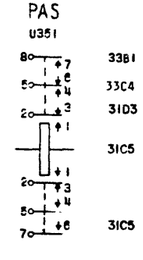
TN1	TN2	TN3
16C6	16B7	16B7
16D6	16D7	16D7
16F6	16E7	16E7
10A2	10B2	10C2
41A/A4	41A/A4	
16H6	16H6	16H7
16G6	16G7	16G7

RELAY
U1131
(VG) TRA (VG) TRA1 (VG) TRA2



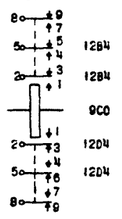
TRA	TRA1	TRA2
24B3		
24B2		23G1
24C1		34E9
29D2	29D3	
29BQ	29D2	29D4
24C2	24G3	
24D2	24F2	
24E1	24F1	

RELAY
PAS
U351



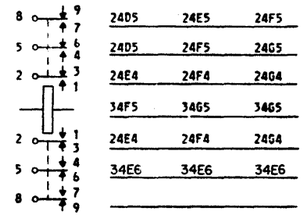
APP FIG. 36

RELAY
VNL
U611



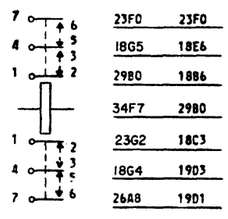
RESISTOR DESIG	LOC	CODE
DB	12C4	19MS
DB1	12C4	19MS
RL	12D4	18AL
RL1	12D5	19PA
TL	1284	18AL
TL1	1285	19PA

RELAY
U177
(VJ) TR4A (VJ) TR4B (VJ) TR4C



TR4A	TR4B	TR4C
24D5	24E5	24F5
24D5	24F5	24G5
24E4	24F4	24G4
34F5	34G5	34G5
24E4	24F4	24G4
34E6	34E6	34E6

RELAY
U189
(VJ) TR5 (VH) TRN

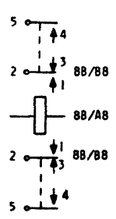


TR5	TRN
23F0	23F0
18G5	18E6
29B0	18B6
34F7	29B0
23G2	18C3
18G4	19D3
26A8	19D1

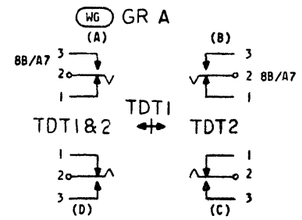
APP FIG. 37
WIRING ONLY

APP FIG 38

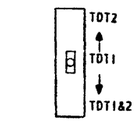
RELAY
(WG) TYS
U254



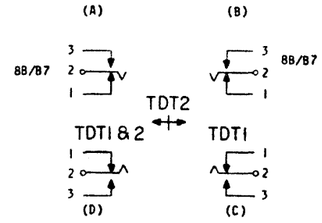
KEY CIG
(WG) GR A



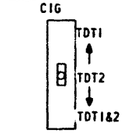
KEYTOP
(WG) GR A CIG



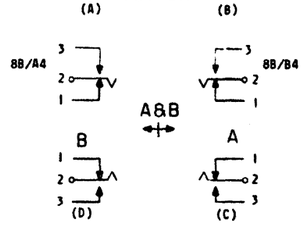
KEY CIG
(WG) GR B



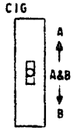
KEYTOP
(WG) GR B CIG



KEY CIG
TST GR



KEYTOP
TST GR CIG



DRAWING ISSUE

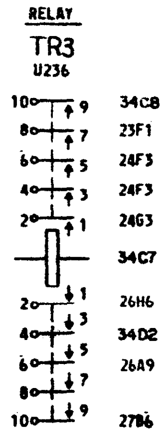
36D	TNC HM
37D	RLY KPW AND DLC
39AR	TRN HMB
41D	PWR CLK AND RLF
45D	WG HMB
58D	
60D	

ISSUE 68B

AUTOMATIC TEST CONTROL (2)
BELL TELEPHONE LABORATORIES INCORPORATED
SD-25161-01-C21
6S

SD-25161-01-C21

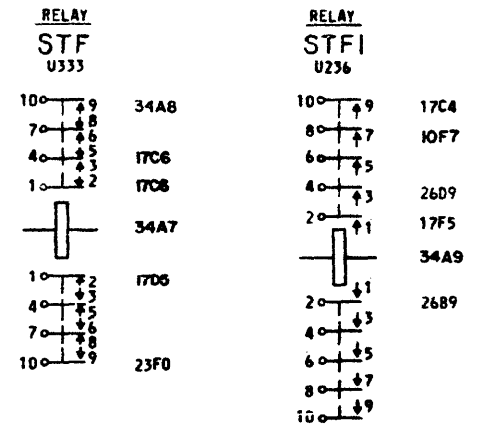
APP FIG. 39



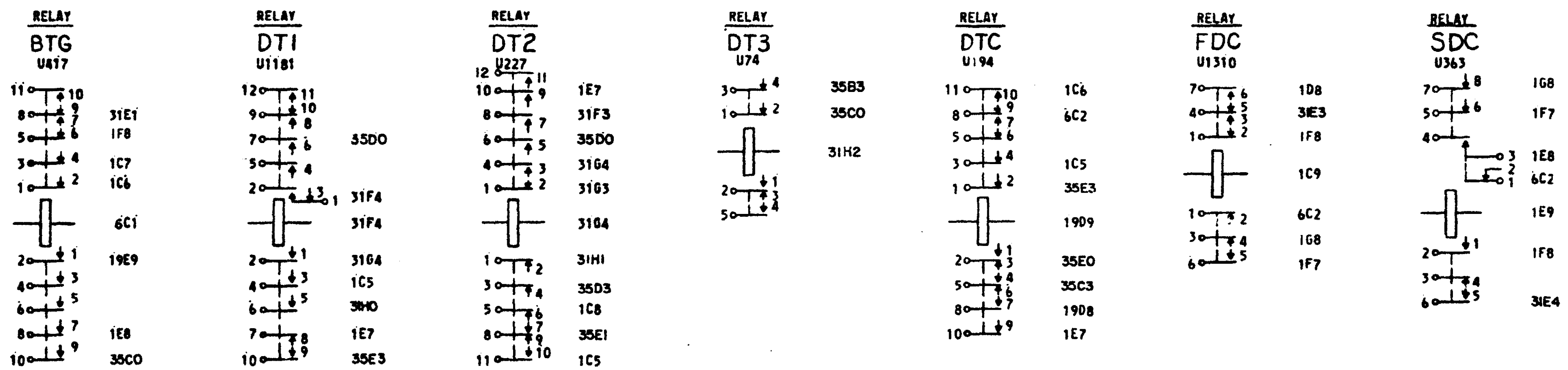
LAMP

DESIG	LOC	CODE
(RB) 3DR	34C1	2Y
(RC) RR	34C1	2Y

APP FIG. 40



APP FIG. 41



RELAY

DESIG	EAS		SAT					
CODE	AK4							
OPTION	OQ		OQ					
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12			M	34H2				
11			EBM					
10			EBM					
9			EMB					
8			EMB	35E1				
7								
6								
5	EMB	35E1						
4	EMB							
3	EBM							
2	EBM							
1	M	34H2						
COIL		34G1		34H1				

LAMP

DESIG	LOC	CODE
FDC	1F7	2Y
SDC	1F8	2Y

NETWORK

DESIG	LOC	CODE
DT1	31F4	185A
DT2	31H4	185A
(RS) DT3	31H2	185A
DTC	19E9	185A
FDC	1D9	185A
SDC	1E9	185A

RESISTOR

DESIG	LOC	CODE
2W1	35E3	KS 13490,L1,510 ±5%
2W5	35E1	KS 13790,L30 1.5 MEG
2W6	35C0	KS 13790,L30 1.5 MEG
(OQ) 2W7	35E1	KS 14786,L2,0.1 MEG
(OQ) 2W8	35F1	KS 14786,L2,0.5 MEG
(OQ) 2W9	35F1	KS 20810,L1A,0.6 MEG
(OQ) 2W10	35F0	KS 20810,L1A,40kΩ
DT1	31G3	18FY
DT2	31G3	18FY

ISSUE 68B

AUTOMATIC TEST CIRCUIT ②

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-C22

APP FIG. 42

RELAY DESIG	TMC	TN	AA	AMB	AR	PTF	FLR	NS	PTF1	SP2A	SP4A	TBY	DESIG
CODE	AK4		AF79	AF13	AK4		AJ14	AK4		AF79	AF79	AF119	CODE
OPTION	RJ		VU	VW						VU	VT		OPTION
CONT ARR / LOC													
12	M 36H6		EMB -	EM -		M -	EM -		M 36E7	EMB	MB -	EM -	12
11	EBM -		M -			EBM 36C4	B 7G4		EBM 36H3	M -	M 2380	M 7G3	11
10	EBM -		EBM -	M 36E5		EBM -	EBM 36A7		EBM -	EBM -	EBM -	M 36F4	10
9	EMB 11H1					EMB -	B 36H7		EMB 7G5			B 22D7	9
8	EMB 7E3		EBM 35F8	EBM -		EMB -	EBM -		EMB -	EBM -	EBM 35F8	M 36G7	8
7				B 36H4			B 36F7					B 36H5	7
6			EMB 19A1	EMB			EMB 2380			EMB 2380	EMB -	EM -	6
5		EMB 35D6		B -	EMB 36H5		B 36H5	EMB 36E7				B 18F0	5
4		EMB 35D8	EBM 2380	M 7G4	EMB -		EBM -	EMB -		EBM 18E1	EBM	M 11H0	4
3		EBM 36G4			EBM -		B -	EBM -					3
2		EBM 35C8	EBM 35D6	M 0	EBM 7G5		M	EBM 7H4		EBM 18F1	EBM 35D5	M 19E7	2
1		M 36E4	M 36C0	M 11G0	M 36D7		M	M 36F4		M 19A1	M 36C0	M 18F1	1
COIL	7E3	36E5	19A1	36D4	36G5	36A4	23B1	36D6	36B4	19E3	19G8	36C4	COIL

(ON) 2387
0
(OP) 3687

RELAY DESIG	TNA	TNB	TNC	TRO	TTA	WN								DESIG
CODE	AJ51	AJ51	AF50	AJ54	AK6									CODE
OPTION														OPTION
CONT ARR / LOC														
12				EM 23B7		BM 36F7								12
11	BM 3A4	BM 11H0		M 7G4		BM 31C5								11
10	EBM 36H7	EBM -	M 36G8	EBM -		BM								10
9				B -		BM -								9
8	EM 36F4	EM 36A4	BM -	EBM 36E4		BM 36F5								8
7	B	B -		B 36H4										7
6	EBM 35E6	EBM -	BM 23B7	EMB 23B6										6
5	B 36H6	B -		B 36A4	BM 31A3									5
4	PM -	PM	M 18F2	EBM -	BM 23A1									4
3	B 36E4	B 35D6		B 18F0	BM									3
2	EM 11H0	EM 35D9		M 18E1	BM 23D0									2
1	BM 35D8	BM -		M 11H0	BM 36B7									1
COIL	36F5	36G5	36E5	36C4	29D0	36B8								COIL

CAPACITOR

DESIG	LOC	CODE
TT1	35B7	437QA

NETWORK

	DESIG	LOC	CODE
	PTF	36A4	185A
(RS)	TN	36E5	185A
	TNA	36F5	185A
	TNB	36G5	185A
	TNC	36E5	185A
	TTA	29D0	185A
	WN	36B8	185A

RESISTOR

DESIG	LOC	CODE
TT2	35C7	KS-16314, L2, 1.2 MEG
TT3	35B8	KS-16314, L2, 2.4 MEG
TT4	35D7	KS-16314, L2, 1000
TT5	35B8	KS-13790, L30, 1 MEG
TT6	35A8	KS-13790, L30, 2.5 MEG

APP FIG. 43

RELAY DESIG	TTM							
CODE	AJ28							
OPTION								
CONT ARR / LOC								
12	EM 37E1							
11	M 7C4							
10	EBM -							
9	M 36G5							
8	EBM 7G4							
7								
6	EMB 35F6							
5	M 36H2							
4	EBM 37A3							
3	M 36D5							
2	EBM -							
1	M 7B1							
COIL	35F7							

RESISTOR

DESIG	LOC	CODE
TT1	35F7	KS-13490, L1 0.1 MEG

TUBE, ELECTRON

DESIG	LOC	CODE
TTM	35F7	313CC

APP FIG. 44

RELAY DESIG	FSF	HTR	TSU	TSC	TDS	TP1	TP2	SYT
CODE	AF151	AK6		AJ14	AF52	AK30		AF64
OPTION					UL	UL		UL
CONT ARR / LOC								
12	PBEM 36G1	BM 36F1		EM	M -		M 22D2	EMB 23G2
11		BM 36G1		B			EBM -	M 17D4
10	EBM 32C0	BM 23G0		EBM 23G0	BM -		EBM -	M 26F9
9		BM		B -			EMB 19F5	BM 22D1
8	EMB 23C0	BM 36A6		EBM 23E0	BM -		EMB 36B6	M 17F5
7				B -				BM 36F2
6	EBM 7H5			EMB 36G1	BM -			EMB -
5			BM 36B6	B -		EMB -		BM 17C6
4			BM 29A7	EBM 23A0	BM -	EMB -		M 36A6
3	BM 31A4		BM 23D0	B -		EBM -		BM 22D1
2	PBEM -		BM 23A0	M 23D0	M 36B6	EBM 22D2		M 34B9
1	BM 36D7		BM 36F2	M 29A7	M	M 22D1		M 34B9
COIL	23C0	36E0	36B1	36G0	36C5	36A5	36B5	34B7

NETWORK

	DESIG	LOC	CODE
(RS)	HTR	36E0	185A
	TSU	36B1	185A

APP FIG. 45

LAMP

	DESIG	LOC	CODE
(OP)	ANN	36B8	2Y
(VV)	FEF	36A8	2Y
	FSF	36D9	2Y
(RJ)	NA	36H8	2Y
	NS	36E8	2Y
	PTF	36D8	2Y
	RTF	36C8	2Y
	TBY	36G8	2Y
	WN	36F8	2Y

DRAWING ISSUE
45D NLF
47D NLF
LOST DRAWING REPRODUCED WITHOUT CHANGE 4-7-65
50A
55D
56A
58D
59AC

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)
BELL TELEPHONE LABORATORIES INCORPORATED
6S
SD-25161-01-C23

SD-25161-01-C23

STABILC

APP FIG. A

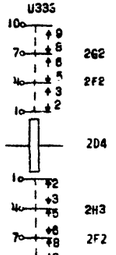
WIRING ONLY

APP FIG. B

RELAY

(OL) GA

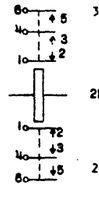
U333



RELAY

(OL) GB

U739



DESIG	GA		GB	
CODE	AK4			
OPTION	OM		OM	
	CONT ARR	LOC	CONT ARR	LOC
12			M	3A/E0
11			EBM	
10			EBM	
9			EMB	2D5
8			EMB	
7				
6				
5	EMB	2G7		
4	EMB	2F2		
3	EBM	2H3		
2	EBM	2F2		
1	M			
COIL		2D4		2D2

CAPACITOR

DESIG	LOC	CODE
E	2E0	[illegible]1C

RESISTOR

DESIG	LOC	CODE
AC	2E0	18CN

DIODE, LIGHT EMITTING
(SEE NOTE 141)

	DESIG	LOC	CODE
(QV)	[20] GROUP 20-39	2A3,B3	552B

LAMPS

	DESIG	LOC	CODE
(QU)	* GROUP 20-39	2A3,C3	2Y

* MAY BE REPLACED BY SIMILARLY DESIGNATED LIGHT EMITTING DIODES (SEE NOTE 141).

SELECTOR

DESIG	CODE	OPTION	BANK CODE	ARC 1 TERM.	ARC 1 LOC	ARC 2 TERM.	ARC 2 LOC	ARC 3 TERM.	ARC 3 LOC	ARC 4 TERM.	ARC 4 LOC	ARC 5 TERM.	ARC 5 LOC	ARC 6 TERM.	ARC 6 LOC	STEP MAG LOC	INT CONT LOC
GA	206BP		26A	1-22	2E1	1-22	2G1	1-22	2A1	1-22	2C1	1-22	3B/A2	1-22	3B/B2	2E0	2E0

APP FIG. C

WIRING ONLY

APP FIG. D

WIRING ONLY

DRAWING ISSUE

36D

37D

45D

61D

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)

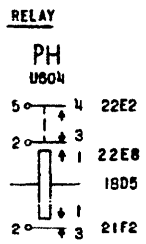
BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-C24

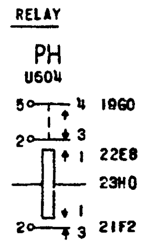
SHEET 65

SD-25161-01-C24

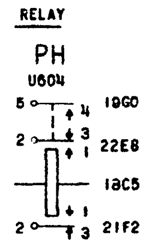
APP FIG. E



APP FIG. F



APP FIG. G

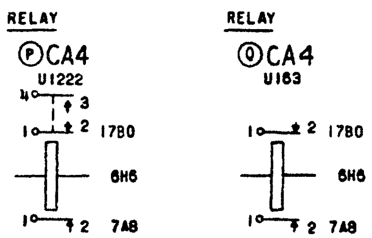


APP FIG. H

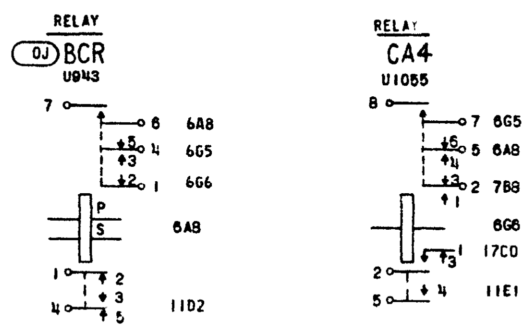
RESISTOR

DESIG	LOC	CODE
CKP	28D4	188

APP FIG. J (MFR DISC)

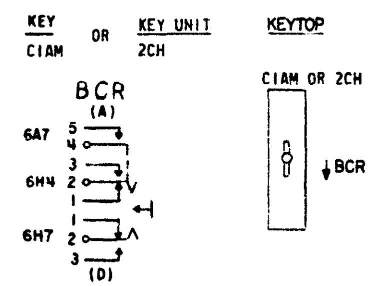


APP FIG. K



RELAY

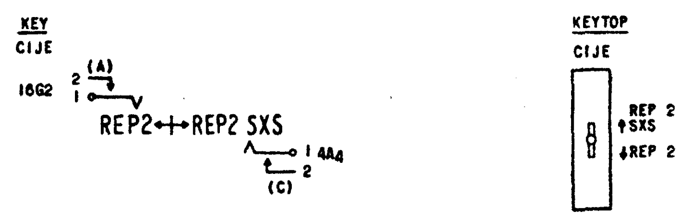
DESIG	BCR	
CODE	AF8	
OPTION	OK	
	CONT ARR	
12		
11		
10	M	6B8
9		
8	EBM	6G5
7	B	
6	EBM	
5	B	6G6
4	EBM	
3		
2	M	11D2
1		
COIL		6A8



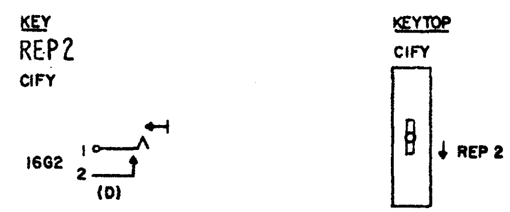
APP FIG L

WIRING ONLY

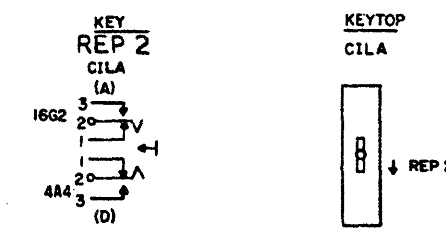
APP FIG. M (MFR DISC)



APP FIG. N (MFR DISC)



APP FIG. P



ISSUE 68B

AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-C25

PRINTED IN U.S.A.

APP FIG. 46

RELAY

DESIG	D1D		IC		IDS		IDT		IDT1		IF		SBT		STR		TRS		HMS						DESIG
CODE	AG4		AF64		AJ5		AJ5		AJ500		AF64		AF134		AK30				AF50						CODE
OPTION															UK										OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12			EMB	-	EBM	35E8	EBM	35D9	EMB	37D3	EMB	33G2	M	37C4			M	37G3							12
11			M	-	EBM	36H6	EBM		BM	-	M	-	M	37A3			EBM	-							11
10			M	37F3	EBM	37G3	EBM	37A3	EBM	-	M	37E3	EBM	-			EBM	-	M	37A2					10
9			BM	-	EBM	-	EBM	37A2	M	-	BM	33D3	B	36H6			EMB	-							9
8	M	-	M	-	EBM	-	EBM	37B3	EBM	6F5	M	-	EBM	-			EMB	37A2	BM	-					8
7	B	37C3	BM	37E5	EBM	37D1	EBM	35E4			BM	37E4	B	-											7
6	M	-	EMB	37C1	EBM	35E6	EBM	35E7	EMB	-	EMB	37D1	EBM	35E5					BM	-					6
5	B	-	BM	37B2	EBM	37E4	EBM	37E3	M	-	BM	37B1	B	-	EMB	-									5
4	M	37B3	M	-	EBM	37B1	EBM	7E6	EBM	-	M	-	EBM	6F4	EMB	37G1			M	-					4
3			BM	-	EBM	37B1	EBM	6E5	BM	6A2	BM	1H2			EBM	37F1									3
2			M	-	EBM	-	EBM	-	EBM	11G2	M	33B2	M	35E8	EBM	37A2									2
1			M	1B4	EBM	37A2	EBM	1H3	BM	11B2	M	7C4	M	6G3	M	37E1									1
COIL		37B3		37C1		37C3		37E3		37D3		37D1		37A3		37C3		37F2		37A1					COIL

CAPACITOR

DESIG	LOC	CODE
ID1	35F5	437QA

DIODE

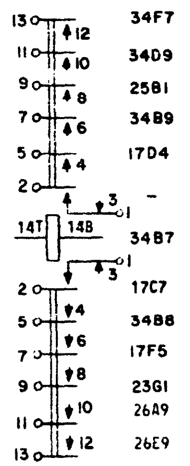
DESIG	LOC	CODE
SBT	37A3	446F

RESISTOR

DESIG	LOC	CODE
ID1	35E7	KS,13790,L30, 1 MEG
ID2	35E8	KS,16314,L2, 1.2 MEG
ID3	35E6	KS,16314,L2, 1K
IDT	37A1	18DS
RES1	37A2	18KF

APP FIG. 47

RELAY
103
U1031

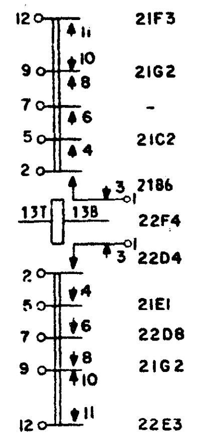


LAMP

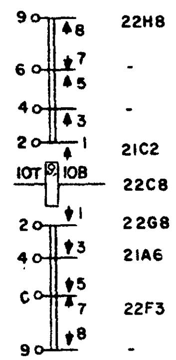
DESIG	LOC	CODE
103	34F8	2Y

APP FIG. 48

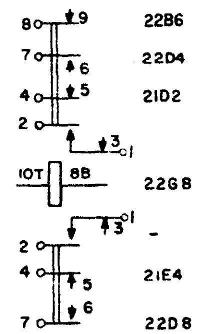
RELAY
CNX
U188



RELAY
CNX1
Y304



RELAY
CNX2
U485

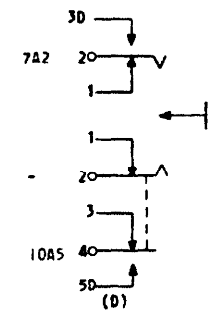


LAMP

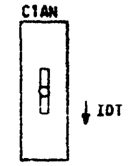
DESIG	LOC	CODE
CNX	22G8	2Y

APP FIG. 49

KEY
IDT
C1AN
(A)



KEYTOP
C1AN

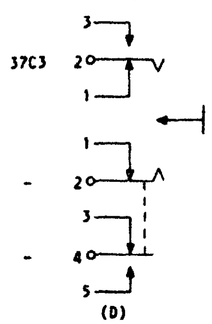


LAMP

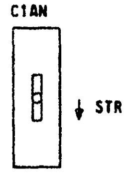
DESIG	LOC	CODE
IC	37F3	2Y
IDS	37G3	2Y
IF	37E3	2Y

APP FIG. 50

KEY
STR
C1AN
(A)



KEYTOP
C1AN



LAMP

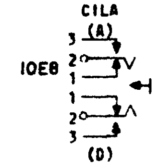
DESIG	LOC	CODE
TRS	37G3	2Y

APP FIG. 51

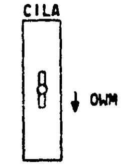
RELAY

DESIG	OWM		OWM1		VCS							
CODE	AJ15		AJ15		AK30							
OPTION												
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12	EBM	29B2	EBM	17G3			M	-				
11	EBM	32F2	EBM	17F3			EBM	-				
10	EBM	32[illegible]	EBM	32D2			EBM	-				
9	EBM	32D1	EBM	36D5			EMB	-				
8	EMB	32F7	EMB	8C/B8			EMB	-				
7	EBM	32B0	EBM	8C/B0								
6	EMB	31B3	EMB	30F2								
5	EMB	29B2	EMB	30F2	EMB	32F6						
4	EBM	-	EBM	30F0	EMB	23E8						
3	EBM	29C2	EBM	30F0	EBM	30H5						
2	EBM	32D7	EBM	30E9	EBM	29F3						
1	EBM	29G1	EBM	30E8	M	-						
COIL		34G8		34G8		32F6						

KEY
OWM
C1LA
(A)



KEYTOP
C1LA



RESISTOR

DESIG	LOC	CODE
G11	30D8	144A
G12	30D8	144A

NETWORK

OPT	DESIG	LOC	CODE
RS	OWM	34G8	185A
RS	VCS	32F6	185A

ISSUE 67B

AUTOMATIC TEST CIRCUIT ②

SD-25161-01-C26

BELL TELEPHONE LABORATORIES INCORPORATED

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SD-25161-01-C26

APP FIG. 52

RELAY

DESIG	G-	
CODE	AF83	
OPTION		
	CONT ARR	LOC
12	M	
11	M	3407
10	M	8B/60
9	M	14C4
8	M	14C2
7	M	14C8
6	M	14C3
5	M	6F2
4	M	18E6
3	M	14C6
2	M	10F0
1	M	10C0
COIL		10A7

APP FIG. 53

RELAY

DESIG	DM	
CODE	AF83	
OPTION		
	CONT ARR	LOC
12	M	
11	M	34G7
10	M	8B/AC
9	M	34A6
8	M	34E0
7	M	34G4
6	M	34C4
5	M	34G1
4	M	34F1
3	M	34D4
2	M	41B1
1	M	34D6
COIL		10B8

APP FIG. 54

RELAY

DESIG	OP			OP1			OP2			OP2A			OP3			OP3A			STL		
CODE	U580			Y99			U234			Y319			Y266			U234			U1414		
OPTION																					
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP																					
																			12,11,10	BM	16B6
																			9,8	B	16E6
													7,6	M	14E5				7,6	B	16F6
							5,4,3	BM	-	4,3	B	-	5,4,3	BM	-	5,4,3	BM	-	5,4	B	a
	3,2,1	BM	18B0	2,1	B	18C0	2,1	B	14E4	2,1	B	18F6	2,1	B	19D1	2,1	B	-	2,1,3	MB	18C2
BOT.	3,2,1	BM	-	2,1	M	-	3,2,1	BM	18C4	2,1	B	-	2,1,3	MB	18E9	3,2,1	BM	18A0	2,1,3	MB	b
							5,4	M	18B0	4,3	M	14F5	6,5,4	BM	-	5,4	M	14E5	5,4	M	14D5
																			7,6	M	18A1
																			10,9,8	BM	16C6
																			12,11	M	18B5
COIL			18F9			18B0			18C0			18A0			19C0			19D0			10A2

a (RM) 16G6
(RN) 18C4

(RM) 18B4
b (RN) 20C8

RELAY

DESIG	STLA		
CODE	U1414		
OPTION			
	CONT NO.	CONT ARR	LOC
TOP			
	12,11,10	BM	1992
	9,8	B	1980
	7,6	B	10D9
	5,4	B	20C7
	2,1,3	MB	19C3
BOT.	2,1,3	MB	19C2
	5,4	M	18F6
	7,6	M	20D7
	10,9,8	BM	19D2
	12,11	M	34B9
COIL			10A2

RESISTOR

DESIG	LOC	CODE
OP	14E5	18AC
OP2A	18A0	18AG

DRAWING ISSUE: 52D, 53D, 55D, 56A, 60D, 61D

ISSUE 68B

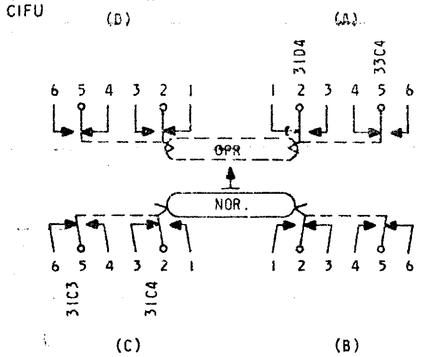
AUTOMATIC TEST CIRCUIT ② SD-25161-01-C27

BELL TELEPHONE LABORATORIES INCORPORATED 6S

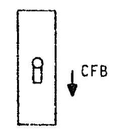
SD-25161-01-C27

APP FIG 55

KEY CFB CIFU OR KEY UNIT 25H



KEYTOP

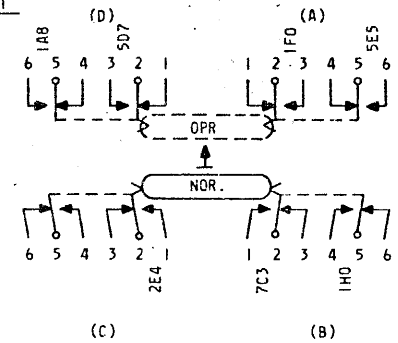


APP FIG 56

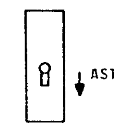
RELAY

DESIG	AST		ASTA		RNA		ASTF														DESIG
CODE	AJ43		AK22				AJ62														CODE
OPTION																					OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12	EBM				EBM		M														12
11	EBM	33D5			EBM		M	7C3													11
10	EBM	29C1			EBM		EBM														10
9	EBM	1F0			EMB	5D6	EB														9
8	EMB				EMB	5F4	EMB														8
7	EBM	33E4					EB														7
6	EMB	1A7					EMB														6
5	EMB	5E4	EMB	5B4			B	1A7													5
4	EBM	33D2	EMB	7C3			EBM														4
3	EBM	33C5	EBM	33F4			EB														3
2	EBM	5D6	EBM	1H1			M	1H1													2
1	EBM		EBM				M														1
COIL		1A8		1A8		5E6		1A6													COIL

KEY CIFU OR KEY UNIT 25H



KEYTOP

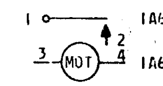


LAMP

OPT	DESIG	LOC	CODE
	TIP	1H1	2Y

TIMER

KS-16100,L4



NETWORK

OPT	DESIG	LOC	CODE
RS	AST	1A8	186A

RELAY

DESIG												
CODE												
OPTION												
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12												
11												
10												
9												
8												
7												
6												
5												
4												
3												
2												
1												
COIL												

RELAY

DESIG																
CODE																
OPTION																
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
24																
23																
22																
21																
20																
19																
18																
17																
16																
15																
14																
13																
12																
11																
10																
9																
8																
7																
6																
5																
4																
3																
2																
1																
COIL																

DRAWING ISSUE 58D 60D 61D

ISSUE 65A

RELAY

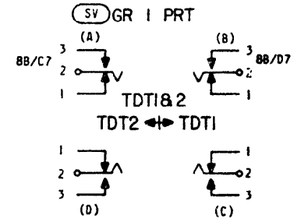
DESIG / CODE / OPTION	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	DESIG / CODE / OPTION
12																			12
11																			11
10																			10
9																			9
8																			8
7																			7
6																			6
5																			5
4																			4
3																			3
2																			2
1																			1
COIL																			COIL

RELAY

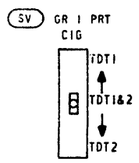
DESIG / CODE / OPTION	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	DESIG / CODE / OPTION
12																			12
11																			11
10																			10
9																			9
8																			8
7																			7
6																			6
5																			5
4																			4
3																			3
2																			2
1																			1
COIL																			COIL

PART OF APP FIG 60

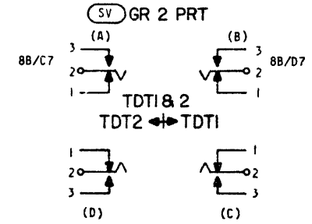
KEY
CIG



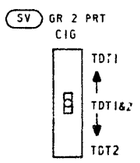
KEYTOP



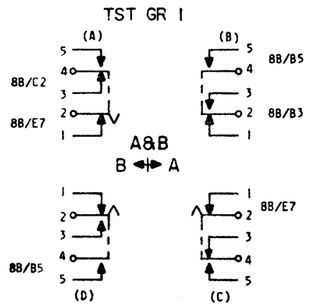
KEY
CIG



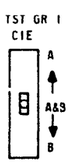
KEYTOP



KEY
CIE (SEE NOTE 213)



KEYTOP



DRAWING ISSUE
60D
61D

ISSUE
63B

AUTOMATIC TEST CIRCUIT (2) SD-25161-01-C30

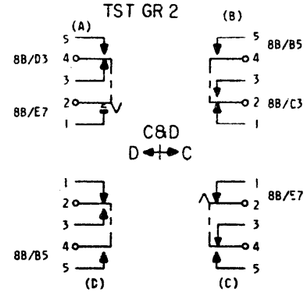
BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-25161-01-C30

PART OF APP FIG 60

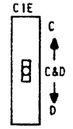
KEY
CIE (SEE NOTE 213)

TST GR 2



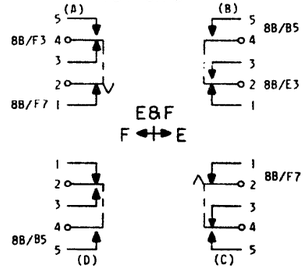
KEYTOP

TST GR 2
CIE



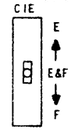
KEY
CIE (SEE NOTE 213)

TST GR 3



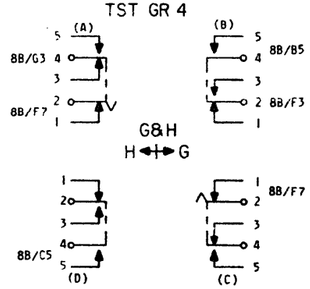
KEYTOP

TST GR 3
CIE



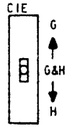
KEY
CIE (SEE NOTE 213)

TST GR 4



KEYTOP

TST GR 4
CIE



APP FIG 61

DESIG	TY1			TY2		
CODE	U1323			U1323		
OPTION						
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	8,7	M	9G3	8,7	M	9G4
	6,5,4	BM		6,5,4	BM	
	3,2,1	BM		3,2,1	BM	
BOT	3,2,1	BM	8B/F8	3,2,1	BM	8B/F8
	5,4	M	8C/F0	5,4	M	8C/F1
COIL			8B/C9			8B/D9

APP FIG 62

DESIG	ANIC		
CODE	U1059		
OPTION			
	CONT NO.	CONT ARR	LOC
TOP	11,10,9	BM	34D2
	8,7,6	BM	10D7
	4,5	B	
	2,1,3	MB	
BOT	2,1,3	MB	
	6,5,4	BM	
	9,8,7	BM	
	11,10	M	34F1
COIL			34D5

LAMP

DESIG	LOC	CODE
ANI	34C2	2Y

NETWORK

DESIG	LOC	CODE
ANIC	34D5	185A

DRAWING ISSUE 60D

ISSUE 68B

AUTOMATIC TEST CIRCUIT

(2) SD-25161-01-C31

BELL TELEPHONE LABORATORIES INCORPORATED

6S

APP FIG. 63

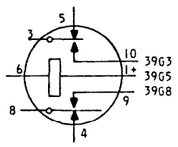
RELAY

DESIG	CIG		I-2		CIR		CIT		CIW		CIZ		CO		CRA		CRB				DESIG
CODE	AK46				AF90		AF90		AJ501		AJ501		AJ15		AK22						CODE
OPTION																					OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12			M	39F6					EBM	39H4	EBM		EBM				EBM				12
11			M	39E6					EBM	39H4	EBM	40C5	EBM	26C1			EBM	40C3			11
10			M						EBM	39G3	EBM	39G4	EBM	40B5			EBM	40A3			10
9			B						EBM		EBM	39B7	EBM	39C2			EMB				9
8			B		M	10C5	M		EMB		EMB	40B1	EMB	39D2			EMB				8
7					B		B		EBM	40A1	EBM	40C1	EBM	39E2							7
6					EBM		EBM	40A5	EMB		EMB	39H5	EMB	39E2							6
5	B				B		B		EMB		EMB	39H5	EMB	39F2	EMB						5
4	B				M		M		EBM		EBM	40B5	EBM	39C2	EMB						4
3	M								EBM		EBM	39F7	EBM	39D2	EBM						3
2	M								EBM	39C7	EBM	40B4	EBM	39F2	EBM	40D3					2
1	M	40A6							EBM		EBM	40A1	EBM	39B2	EBM	40B3					1
COIL		40E1		39A8		39F8		3988		39H5		39H5		40A1		10G1		10G1			COIL

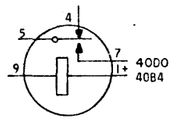
RELAY

DESIG	CRC		HFP		Q4		TGA		THC		PGB								DESIG
CODE	AK22				AJ15		AJ15		AJ15		AF 512								CODE
OPTION																			OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12			EBM	40C4	EBM	39A4	EBM		EBM	40C1									12
11			EBM	40C3	EBM		EBM	27A2	EBM										11
10			EBM		FBM	39F4	EBM		EBM	39E3									10
9			EMB	40A4	EBM	39C4	EBM	40C4	EBM	39D4									9
8			EMB		EMB	39E3	EMB	40A4	EMB	39F6	EBM	39H3							8
7					EBM	39E4	EBM	39H3	EBM	39E7									7
6					EMB		EMB		EMB	3946	EMB	40F2							6
5	EMB				EMB	39C6	EMB	4085	EMB	39F5									5
4	EMB	40C3			EBM	39D3	EBM		EBM	39C5	EBM	4085							4
3	EBM	40D3			EBM	40A0	EBM	40B1	EBM	3906									3
2	EBM	40B3			EBM	39G3	EBM	40C0	EBM	39F6									2
1	EBM	40B3			EBM	39B3	EBM	2603	EBM	39B6									1
COIL		10H1		4091		3965		4001		40C1		13B3							COIL

RELAY
HN 313A



TG 316M



NETWORK

OPT	DESIG	LOC	CODE
	I-2	39A8	185A
	CIG	40E1	
	CIR	39F8	186A
	CIT	39B0	
	CIW	39H5	185A
	CIZ	39H5	
	CO	40A1	
	PGB	13B3	
	Q4	39G5	
	TGA	40D1	
	THC	40C1	

RESISTOR

OPT	DESIG	LOC	CODE
	CRR	40B2	19DT
	CRT	40C2	
	HP	40C6	19EA
	NP	40C4	18KJ
	PP	40A6	

APP FIG. 64

RELAY

DESIG	OST			OSTA								
CODE	U1431			U1431								
OPTION												
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	11,10	M	10D8	11,10	M							
	9,8,7	BM		9,8,7	BM	16B5						
	6,5,4	BM		6,5,4	BM	16D5						
	2,1,3	MB	20B5	2,1,3	MB							
BOT.	2,1	B		2,1	B	10C8						
	4,3	B		4,3	B							
	6,5	B		6,5	B							
	9,8,7	BM	20C7	9,8,7	BM	20C8						
	11,10	M	10E3	11,10	M							
COIL			10E4			1004						

JACK

OPT	DESIG	LOC	CODE
	080	16D4	92
	081	16D4	
	082	16D4	
	083	16D4	
	084	16D4	
	085	16D4	
	086	16D4	
	087	16D4	
	088	16D4	
	089	16D4	
	060	16C4	
	061	16C4	
	062	16C4	
	063	16C4	
	064	16C4	
	065	16C4	
	066	16C4	
	067	16C4	
	068	16C4	
	069	16C4	

NETWORK

OPT	DESIG	LOC	CODE
	OST.1	10E4	186A
	OST.2	10E4	186A

DRAWING ISSUE

ISSUE 65A

AUTOMATIC TEST CIRCUIT

SD-25161-01-C32 (2)

BELL TELEPHONE LABORATORIES INCORPORATED

SHEET 6S

SD-25161-01-C32

APP FIG. 65

RELAY	ABC		ABC					
DESIG								
CODE	AK2							
OPTION	(EVEN)		(ODD)					
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12			M	41F1				
11			M	41F1				
10			M	41G1				
9			M					
8			M	41B5				
7								
6								
5	M	41B5						
4	M							
3	M	41G1						
2	M	41F1						
1	M	41F1						
COIL		41B2		41B2				

APP FIG. 66

RELAY	ANIC		NI1		NI2				AC1		AC2		AC3		ANIT						DESIG
DESIG																					
CODE	AJ5		AK4						AJ5		AJ5		AJ5		AJ5						CODE
OPTION									OB		C		OD		OB						OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12	EBM	11C4			M	26C8			EBM	34C5	EBM	34C5	EBM	34C5	EBM						12
11	EBM	11D3			EBM	2669			EBM		EBM		EBM		EBM						11
10	EBM	34C9			EBM	27C1			EBM		EBM		EBM		EBM						10
9	EBM	41C3			EMB	24B/C4			EBM		EBM		EBM		EBM						9
8	EBM	41C3			EMB	2365			EBM		EBM		EBM		EBM						8
7	EBM								EBM	24B/C5	EBM	24B/C5	EBM	24B/C5	EBM	24B/D1					7
6	EBM	20C0							EBM	24B/C5	EBM	24B/C5	EBM	24B/C5	EBM	24B/D2					6
5	EBM	24B/B4	EBM	2669					EBM	24B/C5	EBM	24B/C5	EBM	24B/C5	EBM	24B/D2					5
4	EBM	26B0	EBM	26C7					EBM	24B/C5	EBM	24B/C5	EBM	24B/C5	EBM	24B/D2					4
3	EBM		EBM	23B2					EBM	24B/C5	EBM	24B/C5	EBM	24B/C5	EBM	24B/D3					3
2	EBM	27D5	EBM	40F0					EBM	24B/C5	EBM	24B/C5	EBM	24B/C5	EBM	24B/C3					2
1	EBM	2669	M	27B1					EBM	24B/C5	EBM	24B/C5	EBM	24B/C5	EBM	24B/C4					1
COIL		34D5		2669		23C6				34C5		34C5		34C5		27C0					COIL

LAMP

OPT	DESIG	LOC	CODE
	AID	20D0	2Y
	ANI	26B(	2Y

PAD

OPT	DESIG	LOC	CODE
	ANI	12A8	IC E/W89 TYPE RES

RESISTOR

OPT	DESIG	LOC	CODE
	ALV	12A7	KS-16313,L3A,600

APP FIG 67

RELAY	FIV		NSA		NSTC		NSC					
DESIG												
CODE	AJ81		AK31				AJ12					
OPTION							QE					
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12	EBM				BM	24C5	EBM	24H2				
11	EBM				BM	24C5	EBM	24H2				
10	EBM	41C2			BM	24D5	EBM	24H2				
9	EBM	41L2			BM	24D4	EBM	24H1				
8	EBM	41B2			BM	34F6	EBM	24H6				
7	EBM	41B2					EBM	24H6				
6	EBM	41B2					EBM	24H6				
5	EBM	41B2					EBM	24H7				
4	EBM	41B2					EBM	41B6				
3	EBM	41B2	B	34H6			EBM	34E1				
2	EBM	41B2	M	34H6			EBM	34E1				
1	EBM	41C2	M	41A6			EBM	34D1				
COIL		10A9		41A3		34H5		41A6				

LAMP

OPT	DESIG	LOC	CODE
	NSC	41B6	2Y

APP FIG. 68

RELAY	ADM		ADM					
DESIG								
CODE	AK13							
OPTION	(EVEN)		(ODD)					
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12			EBM					
11			EBM					
10			EBM	10A9				
9			EM	41B1				
8			EM	41A1				
7								
6								
5	EM	41A1						
4	EM	41B1						
3	EBM							
2	EBM	10A9						
1	EBM							
COIL		10A9		10A9				

SD-25161-01-C33

ISSUE 68B

AUTOMATIC TEST CIRCUIT

(2)

SD-25161-01-C33

BELL TELEPHONE LABORATORIES INCORPORATED

SPEC CODE 65

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APP FIG. 69

RELAY

DESIG	COD					
CODE	AF24					
OPTION	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12	M	41E1				
11	M	41E1				
10	M	41E1				
9	M	41E1				
8	M	41E1				
7	M	41E1				
6	M	41E1				
5	M	41D1				
4	M	41D1				
3	M	41D1				
2	M	41D1				
1	M	41D1				
COIL		41A2				

APP FIG. 70

RELAY

DESIG	PCIC					
CODE	AJ5					
OPTION	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12	EBM	34A0				
11	EBM					
10	EBM	34A8				
9	EBM					
8	EBM	34A3				
7	EBM	40F2				
6	EBM					
5	EBM					
4	EBM	26A1				
3	EBM	26B0				
2	EBM	26C0				
1	EBM	27D4				
COIL		34A6				

LAMP

OPT	DESIG	LOC	CODE
	PCI	26C0	2Y

RELAY

DESIG	CICT								
CODE	U1073								
OPTION	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	12,11	M							
	10,9,8	BM							
	7,6	M	40D0						
	5,4	M	39A0						
	2,1,3	MB	11C5						
BOT.	2,1,3	MB	11C5						
	6,5,4	BM	24B/C6						
	9,8,7	BM	13C3						
	10,11	M	24B/E5						
COIL			40F2						

APP FIG. 71

DESIG	HFT		HFV			
CODE	AK6					
OPTION	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12	BM	38E1				
11	BM	38E1				
10	BM	38E1				
9	BM	38F2				
8	BM					
7						
6						
5			BM			
4			BM			
3			BM			
2			BM	38G1		
1			BM	20E4		
COIL		20D3		41A/A5		

LAMP

OPT	DESIG	LOC	CODE
	HFV	38F2	2Y

NETWORK

OPT	DESIG	LOC	CODE
	HFT	20D3	185A
	HFV	41A/A5	185A

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ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-C34

BELL TELEPHONE LABORATORIES INCORPORATED

PAGE 68S

APP FIG. 72

RELAY

DESIG	CBY		IBD		ICB		ICT		ISL		TMA		TMB		TMC		TMD				DESIG
CODE	AJ15		AK7				AJ15		AF24		AK30				AK30						CODE
OPTION																					OPTIONS
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12	EBM	45F5			EBM	[illegible]08	EBM	44H3	M	3A/G5			M	45D7			M	45F7			12
11	EBM	4D1			EBM	42C5	EBM	42E1	M	44F7			EBM				EBM				11
10	EBM	45C7			EBM	42E7	EBM		M	3A/D4			EBM	45C7			EBM	43G5			10
9	EBM	45F5			EBM		EBM	45H7	M	3A/G3			EMB				EMB				9
8	EMB	45E5			EM		EMB	42A2	M	3A/G3			EMB	45E6			EMB	45E7			8
7	EBM						EBM		M	3A/G3											7
6	EMB						EBM		M	3A/G3											6
5	EMB		EM	45D5			EBM	42C2	M	3A/G3	EMB	45E7			EMB	45					5
4	EBM	43G6	EM				EBM		M	3A/D4	EMB				EMB	45					4
3	EBM	45D5	EBM	42A3			EBM	42E7	M	3A/D4	EBM	43G5			EBM						3
2	EBM	7A5	EBM	45G7			EBM		M	3A/D4	EBM	45E7			EBM	43G5					2
1	EBM	42H4	EBM	44H3			EBM	42C7	M	3A/D4	M	45D6			M	45F5					1
COIL		42E6		42B1		42B1		42A1		42C6		45D8		45D6		45F8		45F6			COIL

RELAY

DESIG	BDRL		ICF																DESIG
CODE	AG1		AJ5																CODE
OPTION	PQ		PQ																OPTIONS
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12	M	45G7	EBM																12
11	M		EBM																11
10	M	42A3	EBM																10
9	B	42E7	EBM	42E8															9
8	M		EBM																8
7	B	42C8	EBM	3B/A3															7
6	M		EBM																6
5	B	44F3	EBM	42A1															5
4	M		EM																4
3	B	44H2	EBM	44G9															3
2	M		EBM																2
1	M	45F6	EBM	45G6															1
COIL		45G8		45G8															COIL

RELAY

DESIG	HLD	
CODE	AJ202	
OPTION		
	CONT ARR	LOC
24	M	6A2
23	M	11G2
22	M	11B2
21	M	5G6
20	M	4D2
19	M	4H2
18	M	4H2
17	M	4H2
16	M	4H2
15	M	4H2
14	M	4G2
13	M	4G2
12	M	4G2
11	M	4G2
10	M	4G2
9	M	4G2
8	M	4G2
7	M	4G2
6	M	4G2
5	M	4G2
4	M	4D2
3	M	4D2
2	M	4D2
1	M	4D2
COIL		42E

NETWORK

OPT	DESIG	LOC	CODE
	CBY	42E6	185A
	HLD	43G0	
	ICT	42A1	
	ISL	42C6	
	TMA	45D8	
	TMC	45F8	

RESISTOR

OPT	DESIG	LOC	CODE
	RTP	10E6	18EF

SELECTOR

DESIG	CODE	OPTION	BANK CODE	ARC				RLS MAG	ROT MAG	O.N. CONT
				1		2				
				TERM.	LOC	TERM.	LOC			
CBT	204B			1-10 ALL	45G5 45G5			43H4	43G4	43H5

PART OF APP FIG. 73

RELAY

DESIG	BCK		BCT		BD		PD6		BSL		BVN		EVN		PD1		PD2				DESIG
CODE	AJ15		AJ15		AK4				AF24		AK4				AK4						CODE
OPTION					PA		PA				PA										OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12	EBM		EBM	44G3			M	44D5	M				M				M	44B4			12
11	EBM	42D8	EBM	42H5			EBM		M				EBM				EBM				11
10	EBM		EBM	42D7			EBM		M	3A/E3			EBM	43E0			EBM				10
9	EBM	45G6	EBM	43B4			EMB		M	3A/G3			EMB	43D1			EMB				9
8	EMB	43B7	EMB	42G7			EMB	44C5	M	3A/G3			EMB	43C1			EMB	44A4			8
7	EBM		EBM	42D2					M	3A/G3											7
6	EMB	44C0	EMB	45D1					M	3A/G3											6
5	EMB	44D0	EMB	42H2	EMB				M	3A/G3	EMB	43C7			EMB	44B4					5
4	EBM		EBM	42D1	EMB	44E4			M	3A/E3	EMB	43D8			EMB						4
3	EBM	42B7	EBM	42B9	EBM				M	3A/E3	EBM	43E8			EBM						3
2	EBM	45C1	EBM	45H0	EBM	44D4			M	3A/E3	EBM				EBM						2
1	EBM	45B7	EBM	43A7	M				M	3A/E3	M				M	44A4					1
COIL		43A9		42G6		45D2		43E9		42B6		43G0		43H0		43C0		43D0			COIL

DESIG	PD4		PD5		RBD		BBD		RCB		BCB		RCK		RCT		RD		PD3		DESIG
CODE	AK4		AK4		AK4		AK4		AK46				AJ15		AJ15		AK4				CODE
OPTION	PA		PA																		OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12			M	44D4			M	45B7			M	45H7	EBM	45E1	EBM				M	44B5	12
11			EBM				EBM				M		EBM	42C8	EBM	42H5			EBM		11
10			EBM				EBM	42G8			M	42H2	EBM	42B2	EBM	42C7			EBM		10
9			EMB				EMB				B		EBM	45H6	EBM	43B4			EMB		9
8			EMB	44C4			EMB	42H2			B	42G7	EMB	43A8	EMB	42F7			EMB	44A5	8
7													EBM		EBM	42D2					7
6													EMB	44B0	EMB	45C1					6
5	EMB	44E4			EMB	42B2			B	42F7			EMB	44C0	EMB	42E2	EMB				5
4	EMB				EMB	42E2			B				EBM		EBM	45F1	EMB	44C3			4
3	EBM				EBM	42F8			M	45G7			EBM	42A7	EBM	42A8	EBM				3
2	EBM				EBM				M				EBM	45B1	EBM	45G2	EBM	44B4			2
1	M	44C4			M	45A7			M	42E2			EBM	45A7	EBM	43A8	M				1
COIL		43C9		43D9		44F4		44H4		42E1		42H1		43A9		42F6		45F2		43E0	COIL

ISSUE 69AC

AUTOMATIC TEST CIRCUIT

SD-25161-01-C35

BELL TELEPHONE LABORATORIES INCORPORATED

SHEET 65

CBL-250 (12-74)

PART OF APP FIG. 73

RELAY

DESIG	RH(0-19)		BH(0-19)		RPL		BPL		RSL		SRA		SSS								DESIG
CODE	AK4		AK4		AK4		AF24		AK35												CODE
OPTION									QR				QR								OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12			M	4E2,G1,H1			M	45D1	M				M	42F1							12
11			EBM	43G2			EBM	44H2	M				EBM	42G2							11
10			EBM				EBM	4505	M	3A/E3			EBM	42E2							10
9			EBM	45H1			EMB	45H8	M	3A/G3			EMB								9
8			EMB				EMB	42H7	M	3A/E3			EMB	44G2							8
7									M	3A/G3											7
6									M	3A/G3											6
5	EMB				EMB	42G7			M	3A/G3	EMB	44G2									5
4	EMB	45G2			EBM	45A8			M	3A/E3	EMB										4
3	EBM				EBM				M	3A/E3	EBM	42E8									3
2	EBM	43H2			EBM	44F2			M	3A/E3	EBM	42F2									2
1	M	4E2,G1,H1			M				M	3A/E3	M	44E7									1
COIL		45G3		45H3		45E2		45E2		42A6		42D1		44G6							COIL

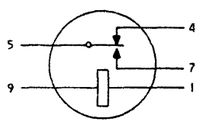
RELAY

DESIG																					DESIG
CODE																					CODE
OPTION																					OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12																					12
11																					11
10																					10
9																					9
8																					8
7																					7
6																					6
5																					5
4																					4
3																					3
2																					2
1																					1
COIL																					COIL

RELAY

DESIG	BCTI		RCTI	
CODE	AJ202		AJ202	
OPTION				
	CONT ARR	LOC	CONT ARR	LOC
24	M		M	
23	M	45B4	M	45A4
22	M		M	
21	M	43A7	M	43A8
20	M	45G1	M	45G1
19	M	45G1	M	45G1
18	M	45G1	M	45G1
17	M	45G1	M	45G1
16	M	45G1	M	45G1
15	M	45G1	M	45G1
14	M	45G1	M	45G1
13	M	45G1	M	45G1
12	M	45G1	M	45G1
11	M	45G1	M	45G1
10	M	45G1	M	45G1
9	M	45G1	M	45G1
8	M	45G1	M	45G1
7	M	45G1	M	45G1
6	M	45G1	M	45G1
5	M	45G1	M	45G1
4	M	45G1	M	45G1
3	M	45G1	M	45G1
2	M	45G1	M	45G1
1	M	45G1	M	45G1
COIL		42D6		42C6

RELAY

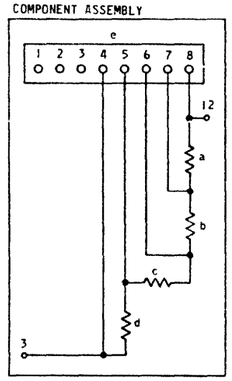


DESIG	CCK
CODE	316M
OPTION	
9	45A5
7	43A7
5	43A7
4	
1	45A5

CAPACITOR

OPT	DESIG	LOC	CODE
QN	BBO	44C5	187B
QN	RBO	44B5	187B

COMPONENT ASSEMBLY



DESIG	CA0			
CODE	ED-94823-(83),G321			
OPTION				
COMPONENT		DESIG	LOC	CODE
RESISTOR	a	T4	44B3	248C,17.8
	b	T3	44B2	248C,8.66
	c	T2	44B2	248C,4.42
	d	T1	44B1	248C,2.15
TERMINAL STRIP	e			318A

DESIG	CA1			
CODE	ED-94823-(83),G321			
OPTION				
COMPONENT		DESIG	LOC	CODE
RESISTOR	a	R4	44C3	248C,17.8
	b	R3	44C2	248C,8.66
	c	R2	44C2	248C,4.42
	d	R1	44C1	248C,2.15
TERMINAL STRIP	e			318A

DESIG	CA2			
CODE	ED-94823-(83),G321			
OPTION	PA			
COMPONENT		DESIG	LOC	CODE
RESISTOR	a	T4	44D3	248C,17.8
	b	T3	44D2	248C,8.66
	c	T2	44D2	248C,4.42
	d	T1	44D1	248C,2.15
TERMINAL STRIP	e			318A

DESIG	CA3			
CODE	ED-94823-(83),G321			
OPTION	PA			
COMPONENT		DESIG	LOC	CODE
RESISTOR	a	R4	44E3	248C,17.8
	b	R3	44E2	248C,8.66
	c	R2	44E2	248C,4.42
	d	R1	44E1	248C,2.15
TERMINAL STRIP	e			318A

JACK

OPT	DESIG	LOC	CODE
PA	BTR	44C7	239CM
	RTR	44A7	239CM

NETWORK

OPT	DESIG	LOC	CODE
	BCB	42H1	
	BCK	43A9	
	BCT	42G6	
	BCTI	42D6	
	BSL	42U6	
QR	SRA	42D1	185A
	RCB	42E1	
	RCK	43A9	
	RCT	42F6	
	RCTI	42C6	
	RSL	42A6	

RESISTOR

OPT	DESIG	LOC	CODE
PA	PA	44B4	KS-20810,L1A,3.32Ω
PA	PB	44C4	
PA	PC	44B4	KS-20810,L1A,6.49Ω
PA	PD	44C4	
PA	PE	44B5	KS-20810,L1A,12.7Ω
PA	PF	44C5	
PA	PJ	44D4	KS-20810,L1A,3.32Ω
PA	PK	44E4	
PA	PL	44D4	KS-20810,L1A,6.49Ω
PA	PM	44E4	
PA	PN	44D5	KS-20810,L1A,12.7Ω
PA	PP	44E5	
QR	SRA	44G3	18A
	TST	45A5	KS-20810,L1A,105kΩ

ISSUE 67B

AUTOMATIC TEST CIRCUIT

SD-25161-01-C36

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S

CBL-250 (12-74)

APP FIG. 74

RELAY

DESIG	BCX--		BCY--		RCX--		RCY--	
CODE	AJ202		AJ202		AJ202		AJ202	
OPTION								
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
24	M	42H4	M	43B2	M	42E4	M	43B2
23	M	44H0	M	44C7	M	44F0	M	44B7
22	M	43B1	M	44D8	M	43B1	M	44B7
21	M	45E3	M	45C2	M	45A3	M	45B2
20	M		M	4E1	M		M	4E3
19	M		M	4H1	M		M	4H1
18	M	43G6	M	4H1	M	43G4	M	4H1
17	M	43F6	M	4H1	M	43F4	M	4H1
16	M	43E6	M	4H1	M	43E4	M	4H1
15	M	43E6	M	4H1	M	43E4	M	4H1
14	M	43D6	M	4G1	M	43D4	M	4G1
13	M	43C6	M	4G1	M	43C4	M	4G1
12	M	45D2	M	4G1	M	45C2	M	4G1
11	M		M	4G1	M		M	4G1
10	M	3A/E5	M	4G1	M	3A/E5	M	4G1
9	M	3A/G3	M	4G1	M	3A/G3	M	4G1
8	M	3A/G3	M	4G1	M	3A/G3	M	4G1
7	M	3A/G3	M	4G1	M	3A/G3	M	4G1
6	M	3A/G3	M	4G1	M	3A/G3	M	4G1
5	M	3A/G3	M	4G1	M	3A/G3	M	4G1
4	M	3A/E5	M	4E1	M	3A/E5	M	4E3
3	M	3A/E5	M	4E1	M	3A/E5	M	4E3
2	M	3A/E5	M	4E1	M	3A/E5	M	4E3
1	M	3A/E5	M	4E1	M	3A/E5	M	4E3
COIL		44G0		43B0		44F0		43B0

NETWORK

OPT	DESIG	LOC	CODE
	BCX--	44G0	185A
	BCY--	43B0	
	RCX--	44F0	
	RCY--	43B0	

APP FIG. 75

RELAY

DESIG	RAC		STOP	
CODE	AJ15		AJ15	
OPTION				
	CONT ARR	LOC	CONT ARR	LOC
12	EBM	44E9	EBM	44E8
11	EBM	44F6	EBM	44F8
10	EBM	5D8	EBM	5D8
9	EBM	1C1	EBM	1C2
8	EMB	3A/B6	EMB	3A/C9
7	EBM	44C5	EBM	44D5
6	EMB	7B4	EMB	7A3
5	EMB	3A/C8	EMB	3A/E8
4	EBM	3A/D8	EBM	44H7
3	EBM	3A/D8	EBM	3A/C8
2	EBM	5C3	EBM	5C3
1	EBM	3A/D0	EBM	1F6
COIL		3A/C9		44G8

NETWORK

OPT	DESIG	LOC	CODE
	RAC	3A/C9	185A
	STOP	44G8	185A

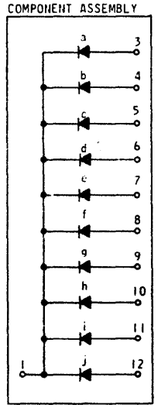
APP FIG. 76

RESISTOR

OPT	DESIG	LOC	CODE
	SSR	44B9	KS-20810,L1A,25kΩ
	SST	44B9	

PART OF APP FIG. 77

COMPONENT ASSEMBLY



DESIG		CA0		
CODE		ED-94823-(77),G283		
OPTION				
COMPONENT		DESIG	LOC	CODE
DIODE	a	SPARE		446F
	b	SPARE		
	c	CR8	8C/G4	
	d	CR7	8C/G3	
	e	CR6	8C/G3	
	f	CR5	8C/G3	
	g	CR4	8C/G2	
	h	CR3	8C/G2	
	i	CR2	8C/G1	
	j	CR1	8C/G1	

DESIG		CA1		
CODE		ED-94823-(77),G283		
OPTION		PG		
COMPONENT		DESIG	LOC	CODE
DIODE	a	SPARE		446F
	b	SPARE		
	c	CR8	8C/G7	
	d	CR7	8C/G7	
	e	CR6	8C/G7	
	f	CR5	8C/G6	
	g	CR4	8C/G6	
	h	CR3	8C/G5	
	i	CR2	8C/G5	
	j	CR1	8C/G5	

DESIG		CA2		
CODE		ED-94823-(77),G283		
OPTION		PH		
COMPONENT		DESIG	LOC	CODE
DIODE	a	SPARE		446F
	b	SPARE		
	c	CR8	8C/B4	
	d	CR7	8C/B3	
	e	CR6	8C/B3	
	f	CR5	8C/B2	
	g	CR4	8C/B2	
	h	CR3	8C/B2	
	i	CR2	8C/B1	
	j	CR1	8C/B1	

DESIG		CA3		
CODE		ED-94823-(77),G283		
OPTION		PJ		
COMPONENT		DESIG	LOC	CODE
DIODE	a	SPARE		446F
	b	SPARE		
	c	CR8	8C/B7	
	d	CR7	8C/B7	
	e	CR6	8C/B7	
	f	CR5	8C/B6	
	g	CR4	8C/B6	
	h	CR3	8C/B5	
	i	CR2	8C/B5	
	j	CR1	8C/B5	

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-C37

BELL TELEPHONE LABORATORIES INCORPORATED

6S

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PART OF APP FIG. 77

KEY
490D

DESIG	DR-1 1W		DR-1 2W		DR-1 A		DR-1 B		DR-1 C		DR-1 D		DR-1 E		DR-1 F		DR-1 G		DR-1 H		DR-2 1W		DR-2 2W		DR-2 A		DR-2 B		DR-2 C		DR-2 D		DR-2 E		DR-2 F		DR-2 G	
OPTION	PH		PH		PH		PH		PH		PH		PH		PH		PH		PH		PJ		PJ		PJ		PJ		PJ		PJ		PJ		PJ	
	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC
	R	8C/B0	R	8C/B0	R	8C/C1	R	8C/C1	R	8C/C2	R	8C/C2	R	8C/C2	R	8C/C3	R	8C/C3	R	8C/C4	R	8C/B8	R	8C/B9	R	8C/B5	R	8C/B5	R	8C/B6	R	8C/B6	R	8C/B6	R	8C/B7	R	8C/B7
	S	8C/B0	S	8C/B0	S	8C/C1	S	8C/C1	S	8C/C2	S	8C/C2	S	8C/C2	S	8C/C3	S	8C/C3	S	8C/C4	S	8C/B8	S	8C/B9	S	8C/B5	S	8C/B5	S	8C/B6	S	8C/B6	S	8C/B6	S	8C/B7	S	8C/B7
	T		T		T		T		T		T		T		T		T		T		T		T		T		T		T		T		T		T	

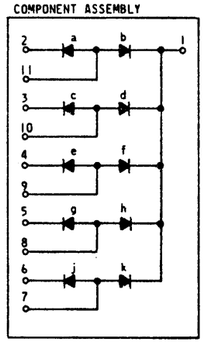
DESIG	DR-2 H		TTY-1 A		TTY-1 B		TTY-1 C		TTY-1 D		TTY-1 E		TTY-1 F		TTY-1 G		TTY-1 GPS		TTY-1 H		TTY-2 A		TTY-2 B		TTY-2 C		TTY-2 D		TTY-2 E		TTY-2 F		TTY-2 G		TTY-2 GPS		TTY-2 H	
OPTION	PJ																				PG		PG		PG		PG		PG		PG		PG		PG		PG	
	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC	TERM. NO.	LOC
	R	8C/B7	R	8C/F1	R	8C/F1	R	8C/F2	R	8C/F2	R	8C/F3	R	8C/F3	R	8C/F3	R	8C/F3	R	8C/G0	R	8C/F4	R	8C/F5	R	8C/F5	R	8C/F6	R	8C/F6	R	8C/F6	R	8C/F6	R	8C/F7	R	8C/F7	R	8C/F8
	S	8C/B7	S	8C/F1	S	8C/F1	S	8C/F2	S	8C/F2	S	8C/F3	S	8C/F3	S	8C/F3	S	8C/F3	S	8C/G0	S	8C/F4	S	8C/F5	S	8C/F5	S	8C/F6	S	8C/F6	S	8C/F6	S	8C/F6	S	8C/F7	S	8C/F7	S	8C/F8
	T		T		T		T		T		T		T		T		T		T		T		T		T		T		T		T		T		T		T	

APP FIG. 78

DESIG	2DG		DDO		DDE		FB		RPC		IB		IG								DESIG
CODE	AJ3		AK42				AK6				AJ12		AJ12								CODE
OPTION																					OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12	EBM	24B/E3			M	41B/E5	BM	41B/A2			EBM	41B/H2	EBM								12
11	EBM	24B/D3			M	41B/H5	BM	41B/B3			EBM	41E/H2	EBM								11
10	EBM	18D0			EBM	41B/H3	BM	41B/C3			EBM		EBM	41B/G4							10
9	EBM	18A5			-		BM	41B/C3			EBM	41B/A5	EBM	41B/A4							9
8	EBM	18H4			EMB	41B/D3	BM	41B/D4			EBM	41B/G6	EBM	41B/B4							8
7	EBM	41A/B5									EBM	41B/C5	EBM	41B/C4							7
6	EBM	18B5									EBM	41B/C6	EBM	41B/C4							6
5	EBM	18G5	EMB	41B/H3					BM		EBM	41B/D5	EBM	41B/D4							5
4	EBM	18G4	-						BM		EBM	41B/D6	EBM	41B/E4							4
3	EBM	17F0	EBM	41B/H3					BM	41B/H3	EBM	41B/E5	EBM	41B/E4							3
2	EBM	26E0	M	41B/D5					BM	20A4	EBM	41B/F5	EBM	41B/F4							2
1	EBM	- 7G1	M	41B/G6					BM	38E1	EBM	41B/G5	EBM	41B/G4							1
COIL		41A/E3		41B/H3		41B/H3		38C8		38B8		38D8		38E9							COIL

DESIG				RPA		RPB										DESIG
CODE				AJ12		AJ15										CODE
OPTION																OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	
12				EBM	26B6	EBM										12
11				EBM	38B7	EBM	24B/E3									11
10				EBM	16B4	EBM	24B/E3									10
9				EBM	19A3	EBM	24B/E3									9
8				EBM		EMB										8
7				EBM	17G1	EBM	19A3									7
6				EBM	17G1	EMB	17G1									6
5				EBM	17E1	EMB	17E1									5
4				EBM	26A0	EBM										4
3				EBM	17E6	EBM	38B8									3
2				EBM	41A/G2	EBM										2
1				EBM	18A5	EBM										1
COIL					17E1		17F1									COIL

COMPONENT ASSEMBLY



DESIG		CA4			CA5		
CODE		ED94823-(),G596					
OPTION							
COMPONENT		DESIG	LOC	CODE	DESIG	LOC	CODE
DIODES	a	DC0A	41B/G1	446K	DC1A	41B/G1	446K
	b	DC0B	41B/H1		DC1B	41B/G1	
	c	DC2A	41B/F1		DC3A	41B/E1	
	d	DC2B	41B/F1		DC3B	41B/F1	
	e	DC4A	41B/E1		DC5A	41B/D1	
	f	DC4B	41B/E1		DC5B	41B/D1	
	g	DC6A	41B/C1		DC7A	41B/C1	
	h	DC6B	41B/D1		DC7B	41B/C1	
	j	DC8A	41B/B1		DC9A	41B/A1	
	k	DC8B	41B/B1		DC9B	41B/B1	

LAMP

OPT	DESIG	LOC	CODE
	2D	26D0	2Y

NETWORK

OPT	DESIG	LOC	CODE
	FB	38C8	185A
	IB	38D8	
	IG	38E9	
	RPA	17E1	
	RPB	17F1	
	RPC	38B8	

ISSUE 68B

AUTOMATIC TEST CIRCUIT

SD-25161-01-C38

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

PRINTED IN U.S.A.

CIRCUITS NOTES:

101.

DESIG	FUSE AMP	POTENTIAL	ONE PER
A	1-1/3	48V SIG	CKT
B	1-1/3	48V SIG	CKT
C	1-1/3	48V SIG	CKT
D	1-1/3	48V SIG	CKT
E	1-1/3	48V SIG	CKT
F	1-1/3	48V SIG	CKT
G	1-1/3	48V SIG	CKT
H	1-1/3	48V SIG	CKT
KJ	1/2HV	+130V SIG OR CC+	APP FIG. 21,28,32,43,46,73
K	1-1/3	48V SIG	APP FIG 32
L	1-1/3	48V SIG	APP FIG 32
M	1-1/3	48V SIG	APP FIG 32,42-46 & 54
N	1-1/3	48V SIG	APP FIG 32-36,38 & 61
P	1-1/3	48V SIG	APP FIG 40,41 & 51
R	1-1/3	48V SIG	CKT
S	1-1/3	48V SIG	APP FIG. 75
T	1-1/3	48V SIG	ITC FR (MAX. 8)
V	1-1/3	48V SIG	CKT
W	1-1/3	48V SIG	APP FIG 63 & 70
X	1-1/3	48V SIG	APP FIG. 73
Y	1-1/3	48V SIG	APP FIG. 72
Z	1-1/3	48V SIG	CKT
AA	1-1/3	48V SIG	APP FIG. 71 & 78
X ACT	1-1/3	22V AC	APP FIG. 56
A		GRD	CKT
B		GRD	CKT
C		GRD	CKT
D		GRD	CKT
E		GRD	CKT
F		GRD	CKT
J		GRD	APP FIG 20,21,23,35,39,47
H		GRD	APP FIG 32,51
J		GRD	APP FIG 32
K		GRD	APP FIG 32-36,38,61
L		GRD	CKT
M		GRD	APP FIG 5,42-44,49,50,54
N		GRD	CKT
P		GRD	APP FIG. 41
R		GRD	CKT
S		GRD	APP FIG. 75
T		GRD	ITC FR (MAX. 8)
W		GRD	APP FIG 63,70
X		GRD	APP FIG. 73
Y		GRD	APP FIG. 72
Z		GRD	CKT
AA		GRD	APP FIG. 71 & 78

* LOCATED ON MISC FUSE BAY

BATTERY SYMBOL	VOLTAGE RANGE	
-48	45-50 V	SEE
+130	125-135V	NOTE
CC+	116-120V	303-

102. (A) FOR CROSSBAR TANDEM OFFICE

FEATURE OR OPTION			PROVIDED: APP FIG.	APP OR WRG	QUANTITY
ALWAYS PROVIDED IN CROSSBAR TANDEM OFFICE			28, P		1 PER CKT
CONNECTOR (SEE NOTE 106 & 216)			2, 22	YE	1 PER 200 TRK APP (MAX 40)
REMOTE OFFICE TEST LINE CONNECTOR			74	QL	
NO. TRUNKS CONNECTED	1 TO 4000		A		1 PER CKT
	4001 TO 8000		9		
CKT LOCATION	MAINTENANCE CENTER			WD	1 PER CKT
	TOLL TEST CENTER			WC	
BUSY TEST & CONTINUITY REVERSAL CKT			9		1 PER CKT
JACK, LAMP, AND KEY CKT			25		1 PER CKT
AUTOMATIC RETEST			33		1 PER CKT
TIME ALARM OF THIS CKT REQD AT OTHER FRAMES				Z	1 PER CKT
KEY CONTROL OF BUSY TIMING INTERVALS	YES			TI,TJ	1 PER CKT
	NO			TH	
CONNECTOR CONTROL			3	PE,QS	
CONNECTOR ARRANGED FOR ACCESS FROM REMOTE OFFICE TEST LINE (ROTL) (SEE NOTE 142)	YES		72, 73	PC,QK, QM,QN	1 PER CKT
	NO			QH	
TEST TO SYNCHRONOUS TEST LINE			6		
TESTING TO CENTREX TEST TRK PER SD-27640-01	YES		48	UP	1 PER CKT
	NO			UN	
TONE DETECTION			42, 43, 44, 45	UB,UT, TF,VW, VV,UE TP	1 PER CKT
RP TRUNKS TESTED				VU	1 PER CKT
VERIFICATION OF HOME OFFICE SYNCHRONOUS TEST LINES				UL	1 PER CKT
OPERATION TEST OF HOME OFFICE 30, 60, 120 IPM & ANNOUNCEMENT TRUNKS				UM	1 PER CKT
TESTING OF TRUNKS ARRANGED FOR MULTI-FREQUENCY, DIAL PULSE, OR PANEL CALL INDICATOR PULSING			12-19, 31, 32, 34, 39	XS, VF, YD, YY, RQ	1 PER CKT
FREQUENCIES PROVIDED BY AN MF SIGNAL GENERATOR				UX	1 PER CKT
CLASS RELAY			53		1 PER MAJOR TRK CLASS
THREE DIGIT NON-RERING TEST-LINE CODES			20		1 PER CODE (MAX 2)
STANDARD FOUR DIGIT TEST-LINE CODES (BL & TL)			23		1 PER CODE (MAX 3)
OFFICE INDICATING DIGIT CODE RELAY FOR FIVE DIGIT TEST-LINE CODES			24		1 PER DIGIT (MAX 10)
AUXILIARY CLASS RELAY REQD				RE	1 PER CKT
AUXILIARY CLASS RELAY			68		1 PER TWO TRUNK CLASSES
NON-STD TEST-LINE FOUR DIGIT CODE RELAY (TL,BL,& TR) (REQD FOR 3,4,5 OR 7 DIGIT NON-STD CODES	NO			RP	1 PER TL, BL,TR CODE GROUP
	YES		67		
TRANSMISSION TESTING REQD				QE	1 PER CKT
SEVEN OR SIX DIGIT CODES REQD			65		1 PER TWO AB OR ABC CODES
SIX DIGIT CODES				PX	1 PER CKT
PCI OUTPULSING REQD			63, 70	RW	1 PER CKT
FINAL HEAVY POSITIVE PULSE REQD				RV	1 PER CKT
AUXILIARY CLASS RELAYS NOT REQD				RD	1 PER CLASS

102. (A) FOR CROSSBAR TANDEM OFFICE

FEATURE OR OPTION			PROVIDED: APP FIG.	APP OR WRG	QUANTITY
TESTING OF RP TRUNKS	YES		5, 10, G,K	YB, YV, VP	1 PER CKT
	CLASS RELAYS		52		1 PER TRK CLASS
	REPEATING INC CIRCUITS TESTED	YES	27, D		1 PER CKT
		NO	C		
	NO. 1 ESS TRUNKS			SX	1 PER CKT
	HI-FIVE CODES REQD		71	PK	1 PER CKT
	TWO SELECTIONS, SEVEN SELECTIONS, NON-STANDARD TEST LINE CODES (REQUIRES MF SEVEN DIGIT AND NON-STANDARD CODE FEATURES (SEE NOTE 145)	YES	78	PL,PT	1 PER CKT
		NO		PS	1 PER CKT
	NO			F,L	XB	1 PER CKT
TTY USED TO PRINT TRK RECORDS			35, 37, 55	UH, TL, XT, VX, TC	1 PER CKT
TTY INDICATION OF TYPE OF TEST				QB	
AUTOMATIC START OF INC TRK TEST			56	TM	1 PER CKT
TRUNKS TESTED FOR TRANSMISSION			36	WA, VG, VN, TS, VE, VL	1 PER CKT
ONE-WAY TRANSMISSION TESTING REQD ON 2 WIRE COMPLETING TRUNKS	YES		51	SY, UW	1 PER CKT
	NO			UV	1 PER CKT
RP TRUNKS TESTED FOR TRANSMISSION				VH	1 PER CKT
FOUR DIGIT TRANSMISSION TEST-LINE CODES				VJ	1 PER CKT
TEST OF HOME OFFICE TRANSMISSION TEST-LINE			40		1 PER CKT
TRUNKS NOT TESTED FOR TRANSMISSION				VM, WB	1 PER CKT
TTY NOT USED TO PRINT TRK RECORDS (SEE NOTE 142)				TK, UN, XU, VM, WB, UV, UG	1 PER CKT
2-WAY TRUNKS TESTED			29, 30, 41	YM, VR	1 PER CKT
2-WAY EAS AND SATELITE TRUNKS				OQ	1 PER CKT
2-WAY TRUNKS NOT TESTED				YN, VQ, WZ	1 PER CKT
AUTOMATIC TEST OF TRK IDENTIFIER			46, 49		1 PER CKT
OFFICE EQUIPPED WITH SECOND MARKER GROUP				RZ	
ADDITIONAL FOR MANUAL VERIFICATION TEST OF TRK IDENTIFIER			50	UK	1 PER CKT
VERIFICATION OF HOME OFFICE RERING TEST TRUNKS			47		1 PER CKT

102. (A) FOR CROSSBAR TANDEM OFFICE

FEATURE OR OPTION			PROVIDED: APP FIG.	APP OR WRG	QUANTITY
TRUNKS DIVIDED	TWO TESTING GROUPS WITHOUT ONE-WAY TRANSMISSION TESTS		38	WP	1 PER CKT
	TWO LOCATIONS FOR TTY AND/OR DEVIATION REGISTER		61	WG	1 PER CKT
	EIGHT TESTING GROUPS (SEE NOTE 140)		77	WP	1 PER CKT
	TWO TTY	NO		PF	1 PER CKT
		YES	61	PG	
	FIRST DEVIATION REGISTER			PH	1 PER CKT
	SECOND DEVIATION REGISTER			PJ	1 PER CKT

DRAWING ISSUE

ISSUE 68B

AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-DIA

SIZE 6S

SD-25161-01-DIA

102. (B) FOR CROSSBAR NO. 1 OFFICE

FEATURE OR OPTION		PROVIDED APP FIG	PROVIDED APP OR WRG	PROVIDED QUANTITY
ALWAYS PROVIDED IN CROSSBAR NO.1 OFFICE		H, 28	YO, YY, WB, WD, VM, UV, WZ, VQ	1 PER CKT
CONNECTOR (SEE NOTE 216)		1,2		1 PER 200 TRK APP (MAX 40)
REMOTE OFFICE TEST LINE CONNECTOR		74	QL	
STUCK SENDER TRUNK IDENTIFICATION ACCESS (SSTI)		76		
NO. TRUNKS CONNECTED	1 TO 4000	A		1 PER CKT
	4001 TO 8000	B		
BUSY TEST AND CONTINUITY REVERSAL CKT		9		1 PER CKT
JACK, LAMP, & KEY CKT		25		1 PER CKT
AUTOMATIC RETEST		33		1 PER CKT
TIME ALARM OF THIS CKT REQD AT OTHER FRAMES			Z	1 PER CKT
KEY CONTROL OF BUSY TIMING INTERVALS	YES		TI, TJ	1 PER CKT
	NO		TH	
TRUNKS DIVIDED	TWO GROUPS	38	WP	1 PER CKT
	EIGHT GROUPS	60	WP	
TEST TO SYNCHRONOUS TEST LINES		6		
TESTING INTO CENTREX TEST TRK PER SD-27640-01	YES	48	UP	1 PER CKT
	NO		UH	
TESTING OF TRUNKS ARRANGED FOR MULTI-FREQUENCY OR PANEL CALL INDICATOR PULSING		12, 13, 14, 15, 16, 17, 32, 34, 39	XS, VF	1 PER CKT
FREQUENCIES PROVIDED BY AN MF SIGNAL GENERATOR		UX		1 PER CKT
CLASS RELAY		53		1 PER MAJOR TRK CLASS
THREE DIGIT NON-RERING TEST-LINE CODES		20		1 PER CODE (MAX 2)
STANDARD FOUR DIGIT TEST-LINE CODES (BL & TL)		23		1 PER CODES (MAX 3)
OFFICE INDICATING DIGIT CODE REL FOR FIVE DIGIT TEST-LINE CODES		24		1 PER DIGIT (MAX 10)
AUXILIARY CLASS RELAY REQD			RE	1 PER CKT
AUXILIARY CLASS RELAY		68		1 PER TWO TRK CLASSES
NON-STD TEST-LINE FOUR DIGIT CODE RELAY (TL &BL) (REQD FOR 3,4,5 OR 7 DIGIT NON-STD CODES)		69		1 PER TL-BL CODE GROUP
	YES	67		1 PER CKT
	NO		RP	
SEVEN OR SIX DIGIT CODES REQD		65		1 PER TWO ABC OR AQ CODES
6 DIGIT CODES			PX	1 PER CKT
PCI OUTPULSING REQD		63, 70	RW	1 PER CKT
FINAL HEAVY POSITIVE PULSE REQD			RV	1 PER CKT
ANI TRUNKS TESTED	YES	66	RX	1 PER CKT
	NO		RQ	1 PER CKT
2ND ANI CODE REQD			OC	1 PER CKT
3RD ANI CODE REQD			OD	1 PER CKT
SEVEN DIGIT CODES NOT REQD			RQ	
AUXILARY CLASS RELAY NOT REQD			RD, RQ	1 PER CKT
ANI TRUNKS, WINK TEST ONLY		62	RX	1 PER CKT

FEATURE OR OPTION		PROVIDED APP FIG	PROVIDED APP OR WRG	PROVIDED QUANTITY
TESTING OF RP TRUNKS	YES	5, 10, G, K	YB, VP, YV	1 PER CKT
CLASS RELAY		52		1 PER TRK CLASS
REPEATING INC CIRCUITS TESTED	YES	27, D		1 PER CKT
	NO	C		
GH FIVE CODES REQUIRED		71	PK	1 PER CKT
OFFICE SELECTOR TANDEM TRUNKS		64		1 PER CKT
TWO SELECTIONS USING INCOMING ADVANCE, SEVEN SELECTIONS, NON-STANDARD TEST LINE CODES (REQUIRES SEVEN DIGIT AND NONSTANDARD CODE MF FEATURES) (SEE NOTE 145)	YES	78	PL, PT	1 PER CKT
	NO		PS	1 PER CKT
NO. 1 ESS TRUNKS			SX	1 PER CKT
REP 2 TEST			P	1 PER CKT
NO		F, L	XB	1 PER CKT
TTY USED TO PRINT TRUNK RECORDS	YES	35, 37, 55	XT, VX, UH, TC, TL, QB	1 PER CKT
AUTOMATIC START OF INC TRUNK TEST		56	TM	1 PER CKT
NO (SEE NOTE 142)			ZU, WN, XU, TK, UG	
CONNECTOR CONTROL		3	YN	1 PER CKT
CONNECTOR ARRANGED FOR ACCESS FROM REMOTE OFFICE TEST LINE (ROTL) (SEE NOTE 142)	YES	72, 73	QK, QM	1 PER CKT
	NO		QH	
SSTI REQD			QR	1 PER CKT
SSTI WITHOUT ROTL			QT	1 PER CKT
CKT ARRANGED FOR SSTI (SEE NOTE 142)		75	PD, QP, QQ	1 PER CKT
CKT NOT ARRANGED FOR SSTI			PE, QS	1 PER CKT
TONE DETECTION		42, 43, 45	VT, UB, UD, VW, TE	1 PER CKT
RP TRUNKS TESTED			VU	1 PER CKT
OPERATIONAL TEST OF HOME OFFICE 30,60 & 120 IPM TRUNKS, ANNOUNCEMENT TRUNKS, AND PERMANENT SIGNAL HOLDING TRUNKS			UM, RR	1 PER CKT

103.

NETWORK VALUES		
NETWORK NO.	RESISTANCE IN OHMS	CAPACITANCE IN uf
1	470	0.5
2	680	0.25
3	150	0.5
4	150	0.5
5	470	0.11
6	1000	0.5

ISSUE 68B

AUTOMATIC TEST CIRCUIT

(2)

SD-25161-01-D1B

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SPEC SHEET 6S

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SD-25161-01-D1B

CIRCUIT NOTES: (CONT)

104. RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES

CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT: STD	USE IN CIRCUIT: A&M	USE IN CIRCUIT: MD	USE IN CIRCUIT: SPECIAL
3D	A OR B	A		B		A	
8D	301E OR 305D FOR "B"	301E FOR "B"		305D FOR "B"		301E	
	Z	NONE	102	Z			
9D	X OR Y	Y	110	X		Y	
	4A OR 33A VARISTOR	4A VARISTOR		33A		4A	
11D	W OR V	W		V		W	
	N OR M	N		M		N	
	K OR J	K		J		K	
	S OR R	S		R		S	
	Q OR P	Q		P		Q	
	H OR G	H		G		H	
	T OR U	U		T		U	
13D							APP FIG. 7
14D	E OR F	F		E		F	
15D	ZD OR ZC	ZC		ZD		ZC	
	D, ZA OR ZB	A OR B		ZB		B, D, ZA	
16D	ZP OR ZQ	ZP		ZQ		ZP	
	ZG OR ZH	ZG		ZH		ZG	
	ZJ OR ZK	ZJ		ZK		ZJ	
	ZM OR ZN	ZM		ZN		ZM	
	ZE OR ZF	ZE		ZF		ZE	
17D	APP FIG. A OR B	FIG. A	102	APP FIG. A OR B			
18D	APP FIG. C OR D	FIG. C	102	APP FIG. C OR D			
				APP FIG. B			
	ZV	W OR V	105	ZV		V	
	ZW	NONE		ZW			
20D			108, 110	APP FIG. 9,10,11		APP FIG.4	
			105	APP FIG.27	APP FIG.8		
			102, 106, 110 126	APP FIG. 12,13,14 15,16,17, 18,19,20, 21,22,23, 24,25,26, 27,E,F, G,H,K,L		APP FIG.J	
	ZR OR ZS	ZR		ZS		ZR	
	R OR ZT	R		ZT		R	
	YF OR ZX	YF		ZX		YF	
	ZY OR ZZ	ZY		ZZ		ZY	
	YA OR YB	YA	102	YA OR YB			
	YE OR ZU YG	ZU	102, 107	YE, ZU			
	YG	NONE		YG			
		A, B, D, ZA OR ZB		YH		ZB	
	YI	NONE	108			APP FIG.7	YI
	YC OR YD	YC		YC, YD			
21B	YJ OR YK	YJ		YK		YJ	
22B	YL	NONE		YL			
24D	YQ, YM YP OR YN	YN	102	YQ, ~~YM~~, YP, YN			
			102	APP FIG.28, 29,30			
25D	RELAYS			208G		208AB	
26B	YJ	NONE	102	YU			
27D	YR, YS OR YT	YR		YT	YS	YR	
28B	YV OR YW	YW & YL OR NONE	102	YV		YL, YW	
	YX OR YY	YX	102	YX OR YY			
	YZ	NONE		YZ			
29D	XA	YJ OR NONE	102	XA		YU	
	XB	NONE	102	XB			
30B	XC OR XD	XC		XD		XC	
	XE	NONE		XE			
	XF	NONE		XF			
	XG OR XH	XG	110	XH		XG	
	XJ OR XK	XJ		XK		XJ	

CIRCUIT NOTES: (CONT)

104. (CONT) RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES

CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT: STD	USE IN CIRCUIT: A&M	USE IN CIRCUIT: MD	USE IN CIRCUIT: SPECIAL
30B	XL OR XM	XL		XM		XL	
	FIG. M OR N	FIG. N	102	APP FIG. M		APP FIG. N	
				APP FIG.31			
	XN OR XP	XN		XP		XN	
	XQ	ZE OR ZF		XQ		ZF	
						XA	
33B	WR OR WS	WR		WS		WR	
34D	XT, XU OR WN	XU	102, 110	XT, XU OR WN			
	XR, XS	YR	102 110	XR, XS			
	XY, XX	XX	109 110	YY		XX	
	WA OR WB	WB	102 110	WA OR WB			
	WC, WD OR WM	WM	102, 110	WC OR WD		WM	
	WE OR WF	WE	110	WF		WE	
			102, 110	APP FIG. 32,34,39		APP FIG.21	
			102, 110	APP FIG. 33,35,36 37,38			
	WJ OR WK	WJ	110	WK		WJ	
	WG	NONE	102	WG			
	WP	NONE	102	WP			
	WH, WT OR WU	WT	102, 110	WH, WU		WT	
						YZ	
37D	WV OR WW	WV		WW		WV	
	WX OR WY	WX		WY		WX	
	FIG. M OR P FIG.40	FIG. M NONE	102	FIG. P		FIG. M	
	FIG.40	NONE		FIG.40			
	FIG.41, VA, VB, WZ	WZ	110	FIG.41, VA, VB, WZ			
	VC	NONE	102	VC			
40D	VD	VD OR NONE	111			VD	
41D	VE	NONE	102	VE			
	VF	NONE	102, 110	VF			
	VG, VH, VJ	VG	102, 112	VG, VH, VJ			
	VK OR VL	VK OR NONE	102, 110	VL		VK	
	VP	NONE	102	VP			
42B	VM OR VN	VM	102	VM, VN			
43AC	VQ OR VR	VQ	102, 110	VQ, VR			
45D	VS, VT, VU, VV, VW, VX	NONE	102	VS, VT, VU, VV, VW, VX			
	UD OR UE	UD	102	UD, UE			
	APP FIG. 42,43, 44,45	NONE	102, 110, 305	APP FIG. 42,43 44,45			
	VY, VZ	VY		VZ		VY	
	UA, UB	UA	102	UA, UB			
	UC	NONE	102	UC			
46AC	UF	NONE	110	UF			
47D	UG, UH	UG	102, 113	UG, UH			
	UJ OR X	X	110, 114	UJ		X	
	UK	NONE	102	UK			
	UL	NONE	102	UL			
	UM	NONE	102	UM			
	UN, UP	UN	102	UN, UP			
	UQ, UR	UQ	102	UQ, UR			
	APP FIG. 46,49,50	NONE	102, 110	APP FIG. 46,49,50			
	APP FIG. 47	NONE	102	APP FIG. 47			
	APP FIG. 48	NONE	102, 110	APP FIG. 48			
49D	US, UT	US	115	UT		US	

CIRCUIT NOTES: (CONT)

104. (CONT) RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES

CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT: STD	USE IN CIRCUIT: A&M	USE IN CIRCUIT: MD	USE IN CIRCUIT: SPECIAL
52D	APP FIG. 11,26,51, 52,53, UW,UV	APP FIG. 11,26, UV	102, 110, 116, 117	APP FIG. 51,52, 53,UW, UV	APP FIG.11, 26		
	UX	NONE	102	UX			
	UY OR UZ	UY	102,110 118	UZ		UY	
53D	APP FIG. 54	NONE	102	APP FIG. 54			
	TA OR TB	TA	109, 119	TB		TA	
	TC OR TD	NONE	102, 110, 120	TC, TD			
55D	TE OR TF	TE OR NONE	102, 121	TE, TF			
	TG	NONE		TG			
56A	VS	NONE				VS	
58D	TH, TI, TJ	TH	102	TH, TI, TJ			
	APP FIG. 56, TM	NONE	102, 110	APP FIG 56, TM			
	TO, TP	TO WITH UE	102, 110, 122	TO, TP			
	APP FIG. 55	NONE	102, 110	APP FIG. 55			
	TL, TK	TK	102, 123	TL, TK			
	TQ, TR, TS, SP	TK WITH APP FIG 32 OR NONE	102	TQ, TR, TS, SP			
	SO	SO WITH XT OR NONE	102, 124	SO			
	JACK			215CM, 239CM, 242CM		215A, 239C, 242C	
59AC	TN	NONE	102, 110	TN			
60D	SR, SS	SR	109	SS		SR	
	ST, SU	ST	109	SU		ST	
	SX	NONE	102	SX			
	RA	NONE				RA	
	APP FIG. 60	NONE	102, 140	APP FIG 60			
	APP FIG. 61	APP FIG 61 WITH WG OR NONE	102, 126	APP FIG 61			
	SY, SZ	VE WITH SZ OR NONE	102	SY		SZ	
	WP OR SV	WP OR NONE	102	WP, SV			
61D			127				
62A	TN	NONE	135			TN	

CIRCUIT NOTES: (CONT)

104. (CONT) RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES

CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT: STD	USE IN CIRCUIT: A&M	USE IN CIRCUIT: MD	USE IN CIRCUIT: SPECIAL
63B	RZ	RZ WITH APP FIG. 46 OR NONE	102, 129	RZ			
	RY OR XH	XG	110	RY		XH	
	UR OR UQ OR QA	UQ	110, 131	QA		UR, UQ	
	APP FIG. 62	NONE	102, 130	APP FIG. 62			
	RX	NONE	102	RX			
	APP FIG. 63,70	NONE	102	APP FIG 63,70			
	RW	NONE	102	RW			
	RV	NONE	102	RV			
	RK OR RL	RL	110,128	RK		RL	
	APP FIG. 64	NONE	102	APP FIG. 64			
	RM OR RN	RM	109, 110	RN		RM	
	QZ	NONE	110	QZ			
	RT OR RU	RT	109	RU		RT	
	APP FIG. 66	NONE	102,130, 133,134	APP FIG 66			
	RQ	APP FIG. 17 WITH RQ	102	RQ			
	APP FIG. 67	NONE	102	APP FIG.67			
	APP FIG. 68	NONE	102	APP FIG. 68			
	RP	NONE	102	RP			
	APP FIG. 69	NONE	102	APP FIG.69			
	QF OR QG	NONE OR QF	136	QG		QF	
	RB OR RC	RB	109, 110	RC		RB	
	RD OR RE	RD	102	RD OR RE			
	QE	NONE	102	QE			
	RH	NONE	109	RH			
	RJ OR RI	RI	109, 110	RJ		RI	
	RG OR RF	NONE OR RF	110	RG		RF	
	QC OR QC OR VC	NONE OR QC	109, 110	QC		QC VC	
	QB	NONE	102	QB			
	RR	NONE	102	RR			
	RS	NONE	109	RS			
	YA	YA	131			YA	
	YC	YC	131			YC	
	APP FIG. 65	NONE	102	APP FIG.65			
	YP	YP	131			YP	
	YQ	YQ	131			YQ	
	YX	YX	131			YX	
	XR	XR	131			XR	
	APP FIG. E	APP FIG. E	131			APP FIG. E	
	WH	WH	131			WH	
	UA	UA	131			UA	
	TO	TO	131			TO	
	TR	TR	131			TR	
	SO	SO	131			SO	
	SP	SP	131			SP	
	UZ	UZ	131			UZ	
	TE	TE	131			TE	

DRAWING ISSUE: 52D, 53D, 54AR, 55D, 56A, 57A, 58D, 59AC, 60D, 61D

ISSUE 67B

AUTOMATIC TEST CIRCUIT

SD-25161-01-DIC

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-DIC

CIRCUIT NOTES: (CONT)

104. (CONT)

RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES						
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT		
				STD	A&M	MD
64B	APP FIG. 72 OR QH	QH	102, 110	APP FIG. 72, QH		
	APP FIG. 73	NONE	102	APP FIG. 73		
	APP FIG. 74	NONE	102	APP FIG. 74		
	QJ	NONE	109	QJ		
	QK	NONE	102	QK		
	QL	NONE	102	QL		
	QM	NONE	102	QM		
65A	QN	NONE	102	QN		
	UC	NONE				UC
	TQ	NONE				TQ
66B	APP FIG. 75	NONE	102, 110	APP FIG. 75		
	APP FIG. 76	NONE	102	APP FIG. 76		
	PD OR PE	PE	102,138	PD, PE		
	QP OR QS	QS	102	QP, QS		
	QQ	NONE	102	QQ		
	QR	NONE	102	QR		
	QT	NONE	102	QT		
	QU OR QV	QU	109, 110, 141	QV	QU	
	QW	QW OR NONE				QW
67B	APP FIG. 77	NONE	102, 140	APP FIG. 77		
	PA OR PB	PB	109,138	PA		PB
	PC	NONE	102	PC		
	PF	SV OR WG OR NONE	102	PF		SV
	PG, PH, OR PJ	NONE	102	PG, PH, PJ		
68B	APP FIG. 71	NONE	102	APP FIG. 71		
	APP FIG. 78	NONE	102	APP FIG. 78		
	PK	NONE	102	PK		
	PL	NONE	102	PL		
	PM	NONE	110	PM		
	PN	NONE	109, 110	PN		
	PP	NONE	109, 110	PP		
	PO	PO WITH APP FIG. 15 OR NONE	110	PO		
	PI	PI WITH RC OR NONE	110	PI		
	PS OR PT	PS WITH APP FIG. 5 OR NONE	102	PS, PT		
	PU	NONE	109	PU		
	PV	NONE	110	PV		
	PW	PW WITH APP FIG. 63 OR NONE	110, 143	PW		
	PX	NONE	102, 110	PX		
	PY OR PZ	PY WITH VH OR NONE	109, 144	PZ		PY
	APP FIG. 54	NONE	116, 145		APP FIG. 54	
	OA OR OB	OA WITH APP FIG. 66 OR NONE	109	OB		OA

104. (CONT)

RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES						
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT		
				STD	A&M	MD
68B	OC, OD	NONE	102, 110	OC, OD		
	OE OR OF	OE WITH APP FIG. 5 OR NONE	110	OF		OE
	OG OR OH	OG	110	OH	OG, WY, UJ, XY	
	OI	NONE	109, 110	OI		
	OK OR OJ	OJ WITH APP FIG. K OR NONE	110	OK	OJ	
	OM OR OL	OL WITH APP FIG. B OR NONE	110	OM	OL	
	OP OR ON	ON WITH VW OR NONE	109, 110, 146	OP		ON
	OQ	NONE	102, 110	OQ		
	VARISTOR			33LR		33L
	PQ, PR	NONE	109	PQ, PR		
	LAMPS	ALM BPT CBY ICR RPT SST	141	552A 552B 552C 552A 552B 552C	2Y 2Y 2Y 2Y 2Y	MI
69AC	ZU WITH OX OR QY	ZU WITH QY OR NONE	110	QX, QY		

104. (CONT)

RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES						
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT		
				STD	A&M	MD

104. (CONT)

RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES						
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT		
				STD	A&M	MD

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CIRCUIT NOTES: (CONT)

105. ZV OPTION MUST BE PROVIDED WHEN APP FIG. 8 IS FURNISHED.

106. APP FIG. 1 IS RATED (A&M ONLY) FOR CROSSBAR TANDEM OFFICES. WHEN TEST OF THE TRUNK IDENTIFIER IS REQUIRED, WHEN A NEW BAY OF CONNECTOR SWITCHES IS ADDED IN A CROSSBAR TANDEM OFFICE OR WHEN OUTGOING REPEATER CIRCUITS ARE CONNECTED TO THIS AUTOMATIC TEST CKT, APP FIG. 22 MUST BE FURNISHED.

107. WHEN APP FIG. 22 IS FURISHED, YE OPTION MUST BE PROVIDED.

108. AT KANSAS CITY WHEN INCOMING SELECTORS THAT FUNCTION WITH FINAL SELECTOR CIRCUITS WHICH AWAIT SENDER AFTER UNITS SELECTION ARE TESTED, PROVIDE YI OPTION APP FIG. 5 & 11.

109. FEATURE AND OPTIONS ALWAYS PROVIDED AFTER DATE OF INTRODUCTION INTO MANUFACTURE. WHEN ADDING THESE FEATURES TO EXISTING CIRCUITS PROVIDE THE CORRESPONDING OPTIONS.

FEATURE OR OPTION	PROVIDE: APP FIG.	APP OR WRG	QUANTITY
BUILD-OUT CONTROL FOR REMOTE OFFICE TEST LINE BALANCE PORT		FA	
LAMP INDICATION OF FLOOR ALARM		QJ	
REDUCED CURRENT DRAIN AND IMPROVED LAMP LIFE		QV	
CONTINUITY AND POLARITY TEST FOR TRUNKS HAVING OUTGOING RELAY EQPT		XY	1 PER CKT
WHEN RECORDER CKT IS PROVIDED AND TYPE OF RECORD SYMBOL IS REQUIRED			
WHEN 3 DIGIT NON RERING CODES ARE REQUIRED TO REACH A SYNCHRONOUS TEST LINE		TB	1 PER CKT
INCREASED SENSITIVITY TO HITS DURING DIAL PULSING		SS	
LAMP AND TTY INDICATION OF RP DISCONNECT FAILURE		QD	1 PER CKT
IMPROVED CONTACT PROTECTION		RS	1 PER CKT
IMPROVE LAMP AND TTY INDICATIONS FOR CP, CPT AND VT TEST		RU, RJ	1 PER CKT
CP AND CPT TESTS FOR NORMALLY REVERSED TRUNKS		RH	1 PER CKT
7 DIGIT PULSE STEERING		RC	1 PER CKT
LAMP AND TTY INDICATIONS FOR 2 DIGIT RP AND 7 DIGIT NON-RP PULSING		RN	1 PER CKT
5XB TRUNKS WITH SLOW RELEASE D RELAYS		SU	1 PER CKT
RP CLASS LAMP		PU	1 PER CKT
COMPLETE ANI OUTPULSING TO MAKE CIRCUIT OPERATION SIMILAR TO ROTL		OB	1 PER CKT
IMPROVED OPERATION FOR MF & DP TRUNKS WITH THE REP OR REP2 KEY OPERATED		PP, PN	1 PER CKT
REP2 OPERATION SIMILAR TO MF & DP TRUNKS AND DISCONNECT TEST PROVIDED DURING TRANSMISSION TESTS OF RP TRUNKS		PZ	1 PER CKT
DISTINCTIVE INDICATION OF VOICE ANNOUNCEMENT		OP	1 PER CKT
LAMP INDICATION OF REORDER ON CIRCUITS ARRANGED FOR TELETYPEWRITER		OI	1 PER CKT
ROTL ACCESS OF CONNECTORS HELD BUSY BY A STUCK ITT		PQ, PR	1 PER CKT

110. COORDINATING WITHIN CKT:

PAR	ISS	WHEN THIS FEATURE, APP FIGURE OR OPTION IS PROVIDED	PROVIDE: APP FIG.	APP OR WRG
		XT	9	XH,TC
		APP FIG. 32 & 12		WK,WF
		APP FIG. 32 OR 37	33	WU,X
		APP FIG. 33		X,WU
		WHEN APP FIG. 33 IS FURNISHED WITHOUT APP FIG. 34		WH
		APP FIG. 35		WC OR WD
		WC OR WD		X
		APP FIG. 32 AND 41		VB
		APP FIG. 41 WITHOUT APP FIG. 32		VA
		APP FIG. 46	33,43	UJ
		APP FIG. 41 WITH APP FIG. 34		UF
		UP WITH APP FIG. 48	42, 43, 45	UB
		UP WITH APP FIG. 51 & 52 OR APP FIG. 51 & 53	32, 36, 39	XS,VN, VE,VL. WA
		UZ		UH
		APP FIG. 54		XH
		WA WITH APP FIG. 32	22	
		TM WITH APP FIG. 56	55	TL,WY,UH, XT
		TP		TB
		APP FIG. 55	37	XT
		APP FIG. 62	9,14	XY
		APP FIG. 64		RN
		APP FIG. 65		RN,VF, HC
		APP FIG. 68	23	
		UM	14	QG
		QB		QA
		WA WITH QB		RG
		RN WITH XT		QZ
		XT	32, 34	XS
		APP FIG. 41 WITH XT		QD
		WA	44	
		APP FIG. 54 WITH XT		RY,RN
		VH		VP
		VJ		VF
		APP FIG. 5 WITH APP FIG. 42		VU,V?
		APP FIG. 13 WITH APP FIG. 42		VF,VT
		APP FIG. 42 WITH XT	35	VX
		RJ WITH XT		QZ
		RR		RH,RJ, UM
		RJ		XY
		APP FIG. 72		QJ, RK,UJ
		APP FIG. 75		QV,RK, RY,UH,UJ
		ZU WITH QL		QX
		ZU WITH QH		QY
		APP FIG. 78	13,14, 15,67	ZV,ZX,XF, YY,PX,VP,
			65,68, 69, AS REQD	RE,RL,PP, PN,PW,QH
		APP FIG. 76 WITH OPTION VH		PV
		APP FIG. 71		QF
		APP FIG. 71 WITH APP FIG. 78		PM
		APP FIG. 63		PW
		OC,OD	66	QB
		APP FIG. K WITH OPTION QH		QK
		APP FIG. B WITH OPTION QH		QM
		QP		VW
		QP WITH XT		QQ
		APP FIG. 15 WITHOUT APP FIG. 78		PQ
		RC WITHOUT APP FIG. 78		PI
		XT		QI
		QQ	29,30	

111. PRIOR TO ISSUE 40D, OPTION VD WAS PART OF OPTION XT.

112. PRIOR TO ISSUE 41D, OPTION VG WAS PART OF APP FIG. 35.

113. PRIOR TO ISSUE 47D, OPTION JG WAS PART OF OPTION XT.

114. PRIOR TO ISSUE 47D, OPTION UJ WAS PART OF OPTION X.

115. WHEN ANY MF TRUNK TESTED HAS BEEN MODIFIED FOR INCREASED DISCONNECT TIME, UT OPTION IS REQUIRED TC PREVENT FAILURE ON RESEIZURE OF MF TRUNKS ON "REPEAT" AND "REPEAT 2" TESTS.

116.

A&M FEATURE OR OPTION		PROVIDE: APP FIG.	APP OR WRG	QUANTITY
TESTING OF RP TRUNKS	TWO DIGIT CODE FOR TEST TO A SYNCHRONOUS TEST LINE WITHOUT INCOMING ADVANCE FROM SENDER	54	TD	1 PER CKT
FOR TESTING TRUNKS ARRANGED FOR RP	CLASS RELAY	11		1 PER CLASS OF TRUNKS TESTED
FOR TESTING TRUNKS ARRANGED FOR DP OR MF	CLASS RELAY	26		1 PER CLASS OF TRUNKS TESTED

117. WHEN APP FIG. 51 AND UW OPTION IS SPECIFIED, APP FIG. 52 OR 53 MUST BE PROVIDED FOR THOSE TRUNKS AFFECTED.

118. PRIOR TO ISSUE 52D, OPTION UY WAS PART OF OPTION UR.

119. WHEN A SYNCHRONOUS TEST LINE IS TO BE REACHED BY A THREE DIGIT NON RERING TEST CODE, TB OPTION IS REQUIRED. WHEN TB OPTION IS PROVIDED AND A NON SYNCHRONOUS TEST LINE IS TO BE REACHED BY A THREE DIGIT NON RERING OR A FOUR DIGIT CODE, A CROSS CONNECTION BETWEEN TL AND NS PUNCHING IS REQUIRED.

120. PRIOR TO ISSUE 53D, OPTON TC WAS PART OF XT OPTION.

121. PRIOR TO ISSUE 55D, OPTION TE WAS PART OF APP FIG. 42.

122. PRIOR TO ISSUE 58D, OPTION TO WAS PART OF UE OPTION.

123. PRIOR TO ISSUE 58D, OPTION TK WAS PART OF APP FIG. 33.

124. PRIOR TO ISSUE 58D, OPTION SO WAS PART OF XT OPTION.

125. PRIOR TO ISSUE 60D, APP FIG. 61 WAS PART OF APP FIG. 38, APPARATUS OPTION WG.

126. PRIOR TO ISSUE 20D, APP FIG. 25 WAS PART OF APP FIG. 5.

127. ALL CHANGES ADDED ON ISSUE 61D WERE CANCELED ON ISSUE 62A.

128. ON ISSUE 63B, B BATTERY AND B GROUND ON THE CONNECTOR FRAMES (RL OPTION) WAS CHANGED TO V BATTERY AND N GROUND (RK OPTION).

129. PRIOR TO ISSUE 63B OPTION RZ WAS PART OF APP FIG. 46.

130. APP FIG. 62 AND APP FIG. 66 MAY NOT BE SUPPLIED TOGETHER. APP FIG. 62 PROVIDES ONLY A "WINK" TEST FOR ANI TRUNKS WHEN THE CP KEY IS OPERATED. APP FIG. 66 PROVIDES A MORE COMPLETE TEST OF ANI TRUNKS AND FUNCTIONS WHEN TEST LINE TESTS ARE PERFORMED. IF THE FUNCTIONS OF BOTH APP FIG. 62 AND 66 ARE REQUIRED: PROVIDE APP FIG. 66 AND CROSS CONNECT PEM TO CPI FOR ANI CLASS DM RELAYS. DO NOT USE APP FIG. 62 OR THE PEM TO CPI CROSS CONNECT WITH PCI TRUNKS.

131. FEATURES OR OPTIONS COMBINATIONS RATED (MFR DISC).

FEATURE OR OPTION		PROVIDE: APP FIG.	APP OR WRG	QUANTITY
OPERATION WITH RECORDER CKT	YES		UR	1 PER CKT
	NO		UQ	
TURN OFF RECORDER AT END OF CYCLE			UZ	1 PER CKT
CKT NOT EQUIPPED WITH RERING (APP FIG. 32 & 34)			XR, WH	1 PER CKT
CKT NOT EQUIPPED WITH TONE DETECTOR			UA	1 PER CKT
2-WAY TRUNKS, GO START SUPERVISION, AND ONE-WAY TRUNKS ONLY		30	YP	1 PER CKT
2-WAY AND ONE-WAY TRUNKS LESS 2-WAY GO START TRUNKS		28, 29	YQ	1 PER CKT
CKT ARRANGED FOR RP ONLY		E,K	YA, YC, fX	1 PER CKT
CKT ARRANGED FOR DP ONLY		F,L	XB, YC, YY	1 PER CKT
CKT ARRANGED FOR DP AND RP ONLY		G,K	XB, YC, YY	1 PER CKT
DP TRUNKS, ALL DISTANT OFFICES WITHOUT INTERCHANGABLE OFFICE & AREA CODES			TE	1 PER CKT
TEST PROGRESS TONE DETECTION WITH NO TESTS MADE TO SYNC TEST LINES IN TOLL OR TANDEM OFFICES			TO	1 PER CKT
WITHOUT CANCEL FR BLOCKAGE FEATURE	TTY PROVIDED		SO	
	TRANSMISSION FEATURE		TR,SP	
DETECTION OF MASTER BUSY			RA	

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CIRCUIT NOTES: (CONT)

132. PRIOR TO ISSUE 63B, OPTION hQ WAS PART OF APP FIG. 17.

133. PROVIDE 1 89-TYPE RESISTOR PER APP FIG. 66. THE ATTENUATION IN DB FOR THIS RESISTOR IN 600 OHM CIRCUITS SHALL BE EQUAL TO 18DB LESS THE EML OF THE MAXIMUM LOSS ANI TRUNK TESTED BY THIS CIRCUIT.

134. WHEN APP FIG. 66 IS PROVIDED, THE TONE DETECTOR (SD-94800-01) MUST BE ARRANGED TO DETECT 1000Hz TONE.

135. THE ASSOCIATED TONE DETECTOR CIRCUIT (SD-94800-01) MUST BE ARRANGED PER ISSUE 88 OR LATER.

136. PRIOR TO ISSUE 63B, OPTION QF WAS PART OF OPTION UM.

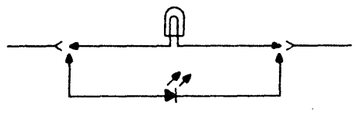
137. 3 DIGIT NON-STANDARD CODES MAY BE OBTAINED BY CROSS-CONNECTING TLE-TLF-TLG AND TRE-TRF-TLG IN FS 53 AS REQUIRED. THEN CROSS-CONNECTING 3DR TO 3D4 FOR RERING TEST LINE OR 3DA TO 3D4 FOR NON RERING TEST LINES WILL RESULT IN 3 DIGIT PULSING. NOTE: THE 4D LAMP WILL LIGHT ALONG WITH THE APPROPRIATE 3D OR 3DR LAMP. IF THE CIRCUIT IS NOT EQUIPPED WITH OPTION RC, ALL STANDARD 3 DIGIT CODE CROSS-CONNECTIONS (H,T,U PCHG TO DC- PCHG) MUST BE REMOVED AND NON-STANDARD CODES ARE REQUIRED FOR ALL 3 DIGIT CODES.

138. PRIOR TO ISSUE 66B, OPTION PE WAS PART OF APP FIG. 3.

139. PRIOR TO ISSUE 67B, OPTION PB WAS PART OF APP FIG. 73.

140. ON ISSUE 67B, APP FIG. 60 WAS RATED MFR DISC. FOR CROSSBAR TANDEM OFFICES ONLY AND WAS REPLACED BY APP FIG. 77.

141. WHERE SPECIFIED, 2Y LAMPS ARE REPLACED BY 552 TYPE LIGHT EMITTING DIODES (LED'S) AS FOLLOWS:



INCANDESCENT LAMPS AND LED'S SHALL NOT BE MIXED ON THE SAME HORIZONTAL 20 LAMP STRIP.

142. OFFICES THAT OPERATE UNATTENDED MUST PROVIDE AN ASSOCIATED PRINTING DEVICE TO PERMIT EFFECTIVE TRUNK TESTING DURING LOW TRAFFIC PERIODS. WITH A PRINTER IN USE A TEST FRAME BLOCKAGE SHOULD SELDOM OCCUR. CIRCUITS ARRANGED FOR ROTL TESTING SHOULD PROVIDE PQ OPTION TO PERMIT ROTL ACCESS TO A CONNECTOR HELD BY A BLOCKED ITT. THE STUCK SENDER TRUNK, IDENTIFICATION FEATURE IN NO.1 CROSSBAR OFFICES CAN OVERRIDE A BLOCKED ITT IF THE (AOSS) KEY IS OPERATED. OPERATION OF THIS (AOSS) KEY WILL NEGATE THE ABILITY OF A ROTL TO ACCESS A CONNECTOR HELD BY A BLOCKED ITT. IF EITHER A ROTL OR SSTI ACCESSES A BLOCKED ITT WITHOUT A PRINTER, INFORMATION PERTAINING TO WHY THE ITT BLOCKED WILL BE LOST OR MUTILATED.

143. PRIOR TO ISSUE 68B, OPTION PW WAS PART OF APP FIG. 63

144. PRIOR TO ISSUE 68B, OPTION PY WAS PART OF OPTION VH.

145. CROSSBAR TANDEM TWO DIGIT REVERTIVE TEST-LINE CODES MUST BE ARRANGED FOR THE "STRAIGHT FORWARD" (CI-OD) SENDER OUTPULSING CLASS WHEN TESTS ARE TO BE MADE FROM AN ITT USING AFP FIG. 54. TWO DIGIT REVERTIVE TESTS FROM A ROTL OR AN ITT USING APP FIG. 78 REQUIRE THE "VACANT CODE",(XB-OD),SENDER OUTPULSING CLASS.

146. PRIOR TO ISSUE 68B OPTION ON WAS PART OF OPTION VW.

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EQUIPMENT NOTES:

201. REVERTIVE PULSING ONLY:

FEATURE	CROSS CONNECT PCHG	CROSS CONNECT PCHG	NOTE
INCOMING UNDER TEST DIRECTED TO FINAL MULTIPLE OR INCOMING TRUNK TEST LINE	IB,IG FB,FT & FU FS20	CTG REL 0-9 FS50	
INCOMING UNDER TEST DIRECTED TO LINE NORMALLY MADE BUSY	IB_1,IG_1 FB_1,FT_1 & FU_1, FS20		
INCOMING UNDER TEST DIRECTED TO TRANSMISSION TEST LINE	IB2,3,4 IG2,3,4 FB2,3,4 FT2,3,4 & FU2,3,4 FS20		
INCOMING TRK UNDER TEST DIRECTED TO SYNCHRONOUS TEST LINE	OBS, OGS FS20		

202. REVERTIVE PULSING TRUNKS:

A (G) RELAY IS REQD FOR EACH INCOMING TRUNK GROUP. A TRUNK GROUP MAY CONSIST OF ANY NO. OF INCOMING TRUNKS AS MAY BE REQD BY TRAFFIC CONDITIONS. WHERE ONE OR MORE TRUNK GROUPS REQUIRE IDENTICAL CROSS CONNECTIONS THE SAME (G) RELAY SHALL BE USED.

THE D CROSSPOINT FOR EACH INCOMING TRUNK CONNECTION IS CROSS CONNECTED TO THE PROPER G PUNCHING OF THE (G) RELAY ASSIGNED FOR THE TRUNK GROUP EXCEPT WHEN APP FIG. 8 IS REQD AS OUTLINED IN NOTE 206.

WHERE A TRUNK GROUP IS COMPOSED OF CONDUCTORS OF DIFFERENT RESISTANCES, THE CONDUCTORS MAY BE REGROUPED SO THAT A SEPARATE (G) RELAY MAY BE USED FOR EACH GROUP OF CONDUCTORS OF THE SAME RESISTANCE. THIS, HOWEVER, SHALL ONLY BE DONE WHERE IT IS POSSIBLE TO OBTAIN A MORE SEVERE TEST.

EQUIPMENT NOTES: (CONT)

202. (CONT)

FEATURE			CROSS CONNECT PCHG	CROSS CONNECT PCHG	NOTE
TEST OF L RELAY	OPR TESTS	PANEL INCOMING SELECTOR	L OPR FS17	0-29 FS17	CONNECT SO THAT THE RESISTANCE ADDED BY THIS CROSS CONNECTION PLUS THE CABLE RESISTANCE WILL BE AS NEAR TO BUT NOT GREATER THAN THE MAX EXTERNAL CKT LOOP FOR SELECTIONS SHOWN ON THE INCOMING SELECTOR DRAWING, ANY EQUALIZING RESISTANCE IN THE INCOMING CKT SHALL BE ADDED TO THE CABLE RESISTANCE
		ESS OR CROSSBAR INCOMING TRUNK			CONNECT TO TERMINAL 0 (ZERO RESISTANCE) WHERE THE CABLE RESISTANCE IS MORE THAN 900 OHMS. WHERE THE CABLE RESISTANCE IS LESS THAN 900 OHMS CROSS CONNECT SO THAT THE RESISTANCE ADDED BY THE CROSS CONNECTION PLUS THE CABLE RESISTANCE WILL BE NEAR TO BUT NOT LESS THAN 900 OHMS
	NON OPERATE TESTS	PANEL INCOMING SELECTOR FOR ALL INCOMINGS AND REPEATING INCOMING WHICH HAVE EXTERNAL SHUNT AROUND(L) RELAY IN INCOMING ADVANCE POSITION	LN OPR FS17	0-28 FS17	CONNECT SO THAT THE CURRENT THROUGH THE (L) RELAY WILL BE AS NEAR TO BUT NOT GREATER THAN THE TEST VALUE AS SHOWN ON THE INCOMING CKT DRAWING WHEN THE VOLTAGE IS 50V ALLOWING FOR LINE INSULATION RESISTANCE
		PANEL INCOMING SELECTORS FOR REPEATING INCOMINGS WHICH DO NOT HAVE SHUNT AROUND(L) RELAY IN INCOMING ADVANCE POSITION	LN OPR R1 FS17	0-28 FS17	
		CROSSBAR OR ESS TRUNK			NO CROSS CONNECTION REQUIRED
TEST OF A RELAY	OPERATE TESTS	ESS, PANEL, AND CROSSBAR TRUNKS	A OPR FS17	0-28 FS17	CONNECT SO THAT THE RESISTANCE ADDED BY THIS CROSS CONNECTION PLUS THE CABLE RESISTANCE WILL BE AS NEAR TO BUT NOT GREATER THAN THE MAX EXTERNAL TRUNK SUPERVISORY LOOP AS SHOWN ON THE INCOMING SELECTOR CKT DRAWING
		PANEL INCOMING SELECTORS ONLY			FOR THE B415 OR B144 RELAY OPERATING WITH 24 VOLTS SUBTRACT 500 OHMS FROM THE MAX EXTERNAL TRUNK SUPERVISORY LOOP

EQUIPMENT NOTES: (CONT)

202. (CONT)

FEATURE			CROSS CONNECT PCHG	CROSS CONNECT PCHG	NOTE
TEST OF A RELAY	NON OPERATE TESTS	ESS, PANEL, AND CROSSBAR INCOMING TRUNKS	AN OPR FS17	0-29 FS17	CONNECT SO THAT THE CURRENT THROUGH THE (A) RELAY WILL BE AS NEAR TO BUT NOT GREATER THAN THE TEST VALUE SHOWN ON THE INCOMING TRUNK CKT DRAWING WHEN THE VOLTAGE IS 25 VOLTS FOR PANEL TRUNKS AND 50 VOLTS FOR CROSSBAR TRUNKS ALLOWING FOR LINE INSULATION RESISTANCE
TYPE OF INCOMING	24 VOLT INCOMING SELECTOR		TF	TFXB FS 13	
	REPEATING INCOMING PANEL TRUNKS AND CROSSBAR TRUNKS WHERE (L) RELAY IS ACROSS TIP & RING		RI FS 13	TFXB FS 13	
	48 VOLT INCOMING SELECTOR				OMIT CROSS CONNECTION TO TERMINAL TF
	CROSSBAR INCOMING TRUNKS		XB	TFXB FS 13	
	NO.1 ESS INCOMING TRUNKS		ESS FS 13	TFXB FS 13	
	OFFICE SELECTOR TANDEM		OST	TFXB	
	OFFICE SELECTOR TANDEM-REPEATING INCOMING		ROS	TFXB	
FINAL MULTIPLE TEST LINE OF THE NON SYNCHRONIZING TYPE			TL FS 13	TL FS 13	FOR TRUNKS NOT ARRANGED FOR XMSN TESTING
TRUNKS ARRANGED FOR TRANSMISSION TESTING	TO OFFICES HAVING NON-SYN OPERATIONAL		TL FS 13	NT1,2 OR 3 FS 13	USE NT3 OR TN3 ONLY WITH HI-5 CROSS CONNECTION IF TRANSMISSION AND OPERATIONAL TEST LINES BOTH REQUIRE HI-5 CODES
	TO OFFICES HAVING SYN OPERATIONAL TEST LINE(S)		TL FS 13	TN1,2 OR 3 FS 13	
	ONE WAY TRANSMISSION TESTING		OWT FS 13	OWM FS 13	
TEST LINE CODE REQUIRES HI-5			HF FS 17	LN OPR FS 17	
FS 7 AND YM, YP OR YQ OPTION			GN FS 7	S FS 7	
TWO TRUNK GROUPS	GROUP A		ATY FS 10	TG FS 10	TRUNKS MAY BE DIVIDED INTO TWO GROUPS FOR ADMINISTRATION PURPOSES OR RECORDING TROUBLES
	GROUP B		BTY FS 10		
EIGHT TRUNK GROUPS	GROUP A		ATY FS 10	TG FS 10	TRUNKS MAY BE DIVIDED INTO EIGHT GROUPS FOR ADMINISTRATIVE PURPOSES. TROUBLE RECORDING OR DEVIATION INDICATIONS MAY BE DONE AT TWO LOCATIONS
	GROUP B		BTY FS 10		
	GROUP C		CTY FS 10		
	GROUP D		DTY FS 10		
	GROUP E		ETY FS 10		
	GROUP F		FTY FS 10		
	GROUP G		GTY FS 10		
	GROUP H		HTY FS 10		
SYNCHRONOUS TEST LINE TWO DIGIT CODE			TL FS 13	STL FS 13	DISTANT OFFICE DOES NOT RETURN INCOMING ADVANCE SEE NOTE 145

EQUIPMENT NOTES: (CONT)

202. (CONT)

FEATURE		CROSS CONNECT PCHG	CROSS CONNECT PCHG	NOTE
TWO SELECTIONS REQUIRING INCOMING ADVANCE, SEVEN SELECTIONS, AND-OR NON-STANDARD TEST LINE CODES		GA-- FS 13	GX-- FS 13	(ADM) RELAYS MAY SERVE ONLY ONE CLASS. (G) RELAYS MAY BE USED ALONE AND ALSO WITH MULTIPLE (ADM) RELAYS.
		GY-- FS 13	GB-- FS 13	
NOT REQD		GA-- FS 13	GB-- FS 13	
SEVEN SELECTIONS		OF-- FS 53	ABC-- FS 53	ONE (ARC) REL REQD FOR EACH OFFICE CODE
		A-- FS 53	DC (0-9) FS 53	
		B-- FS 53		
HI-5 REQD ON ALL TEST LINES		C-- FS 53	SKP FS 53	USE TN1,2 OR NT1,2 FOR LO-5 ON TRANSMISSION TEST
HI-5 REQD ON ALL TEST LINES		OF-- FS 53	HFV FS 53	
NON-STANDARD CODES			NS-- FS 53	ONE (COD) REL REQD FOR EACH FOUR DIGIT TEST LINE GROUP (OPERATIONAL TEST LINE, BUSY LINE, AND TRANSMISSION TEST LINE
	OPERATIONAL TEST LINE CODE	TL-- (D-G)	DC (0-9) FS 53	
	BUSY LINE CODE	BL-- (D-G)		
	TRANSMISSION TEST LINE CODE	TR-- (D-G)		
TWO SELECTIONS TO CROSSBAR TANDEM REQUIRING INCOMING ADVANCE		OF-- FS 53	NS-- FS 53	
		BLD-- FS 53	SKP-- FS 53	PASS BUSY LINE TEST
		TLG-- FS 53	SKP-- FS 53	SEE NOTE 145
	OPERATIONAL TEST CODE	TLD-- TLE-- FS 53	DC (0-9) FS 53	
	TRANSMISSION TEST CODE	TRD-- TRE-- FS 53		

DRAWING ISSUE

520	PVS	A/C
530	KMC	A/C
600		

ISSUE 68B

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EQUIPMENT NOTES: (CONT)

203. DIAL PULSE, PCI AND MULTIFREQUENCY PULSING TRUNKS

A (DM) RELAY IS REQD FOR EACH GROUP OF TRUNKS AND SHALL HAVE ITS CONTACTS CROSS CONNECTED IN ACCORDANCE WITH THE FOLLOWING TABLE.

PROVIDE ONE (DM) RELAY FOR EACH CLASS OF TRUNKS HAVING IDENTICAL CROSS CONNECTIONS AS SHOWN IN THE TABLE BELOW. CROSS CONNECT THE G PUNCHING OF EACH (DM) RELAY TO THE D CROSSPOINT OF ALL TRUNKS ASSOCIATED WITH THE PARTICULAR (DM) RELAY.

FEATURE			CROSS CONNECT PCHG	CROSS CONNECT PCHG	NOTE
TRK CLASS	HOME OFFICE 104-TEST LINE STRAIGHT FORWARD		MF FS 13	3D4 FS 13	"REPEAT" TEST OF HOME OFFICE TEST CIRCUITS
	HOME OFFICE SYNCHRONOUS TEST LINE			P FS 13	
	HOME OFFICE RERING TEST LINE				
	MULTIFREQUENCY PULSING				
	DIAL PULSING		DP FS 13		
	HOME OFFICE 104-TEST LINE STRAIGHT FORWARD		STF FS 13		VERIFICATION OF TEST CIRCUITS
	HOME OFFICE SYNCHRONOUS TEST LINE		SYT FS 13	3D4 FS 13	
	HOME OFFICE RERING TRUNKS (STRAIGHT FORWARD)		103 FS 13		
	RERING TRUNKS REACHING 3-DIGIT TEST LINE		3DR FS 13		
	NON-RERING TRUNKS REACHING 3 DIGIT TEST LINES	FIRST TEST LINE	1ST 3DA FS 13	3D4 FS 13	
		SECOND TEST LINE	2ND 3DB FS 13		
	PCI PULSING		CI FS 13	P FS 13	

203.

FEATURE			CROSS CONNECT PCHG	CROSS CONNECT PCHG	NOTE
TRK CLASS	NON-RERING TRUNKS REACHING 4 OR 5 OR 4 AND 5 DIGIT TEST LINES AND BUSY LINES	1ST TST LINE AND BUSY LINE	1ST 4DA FS 13	3D4 FS 13	
		2ND TST LINE AND BUSY LINE	2ND 4DB FS 13		
		3RD TST LINE AND BUSY LINE	3RD 4DC FS 13		
	XMSN TESTING OF TRUNKS REQUIRING 4 OR 5 DIGIT OUTPULSING		4DT FS 13	TR1,2 OR 3 FS 13	
REPEATED OR CONVERTED SUPERVISION TRK	SPECIAL CONTINUITY AND POLARITY TEST		PEM FS 13	CP1 FS 13	TRUNKS USING REPEATED OR CONVERTED SUPERVISION BETWEEN THE TEST CKT AND TERMINATING OFFICE REQUIRE THIS CROSS CONNECTION
TEST LINE CODE	3 DIGIT RERING		H,T,U FS 29	DC0-DC9 FS 53	SEE NOTE 137
	3 DIGIT NON-RERING	FIRST TEST LINE	1ST H,T,U FS 29		
		SECOND TEST LINE	2ND H,T,U FS 29		
	4 OR 5 DIGIT NON-RERING (TH,H,T,U DIGITS)	FIRST TEST LINE	1ST TL TH,H,T,U FS 29		
		SECOND TEST LINE	2ND TL TH,H,T,U FS 29		
		THIRD TEST LINE	3RD TL TH,H,T,U FS 29		
		FIRST BUSY LINE	1ST BL TH,H,T,U FS 29		
		SECOND BUSY LINE	2ND BL TH,H,T,U FS 29		
		THIRD BUSY LINE	3RD BL TH,H,T,U FS 29		
	OFFICE INDICATING DIGIT	TEST LINE OR BUSY LINE	TU- FS 29		ONE APP FIG. 24 IS REQD FOR EACH OFF. INDICATING DIGIT. AFTER THE PROPER OFF. IS REACHED THE TH,H,T,U PUNCHINGS SHOWN FOR BUSY LINE OR TST LINE WILL RESULT IN THE PROPER LINE BEING REACHED
	3 DIGIT XMSN-TEST LINE		H1,T1,U1 FS 13		
	4 DIGIT XMSN TEST LINE		HU,TH,T,U FS 29		
	5 DIGIT TRUNKS	FIRST TST OR BUSY LINE CODE	5D0-9 FS 13	5D FS 13	
		SEC TST OR BUSY LINE CODE			
		THIRD TST OR BUSY LINE CODE			
		TRANSMISSION TEST LINE CODE			
TRK SUPERVISION TYPE	DELAY PULSE (DELAY DIAL)		DPL FS 13	SP FS 13	
	WINK		WK FS 13		
	GO (GO START, SXS)		GO FS 13		

203.

FEATURE			CROSS CONNECT PCHG	CROSS CONNECT PCHG	NOTE
TRK DIAL PULSING TYPE	LOOP (LOOP A)		LPD FS 13	TD FS 13	
	LOOP RESISTANCE (LOOP B)		LRD FS 13		
	BATTERY AND GROUND		BGD FS 13		
TYPE OF TEST LINE	SYN	WITH STOP GO	SG FS 13	TL FS 13	SEE NOTE 119
		WITHOUT STOP GO	NONE		
	NON SYN	WITH STOP GO	SGNS FS 13		
		WITHOUT STOP GO	NS FS 13		
TYPES OF TRK	TWO WAY DELAY DIAL		2W FS 13	GN FS 13	THESE CROSS CONNECTIONS ARE ONLY REQUIRED IF BOTH ONE WAY AND TWO WAY TRUNKS ARE TESTED
	TWO WAY GO START		2WS FS 13		
	ONE WAY		S		
	HOME OFF. TST LINE		FS 7		
	TWO WAY EAS GO START TO SXS		EAS FS 13		
	MF VIA SATELITE		SAT FS 13		
TWO TRK GR	GROUP A		ATY FS 10	TG FS 10	TRUNKS MAY BE DIVIDED INTO TWO GROUPS FOR ADMINISTRATION PURPOSES, FOR RECORDING TROUBLES OR FOR SEPARATE DEVIATION INDICATIONS
	GROUP B		BTY FS 10		
EIGHT TRUNK GROUPS	GROUP A		ATY FS 10	TG FS 10	TRUNKS MAY BE DIVIDED INTO EIGHT GROUPS FOR ADMINSTRATIVE PURPOSES. TROUBLE RECORDING OR DEVIATION INDICATION MAY BE DONE AT TWO LOCATIONS.
	GROUP B		BTY FS 10		
	GROUP C		CTY FS 10		
	GROUP D		DTY FS 10		
	GROUP E		ETY FS 10		
	GROUP F		FTY FS 10		
	GROUP G		GTY FS 10		
	GROUP H		HTY FS 10		
TRK XMSN LIMIT	VIA NET LOSS TRUNKS		2.4M-11.7M AND 4.0M FS 11	DA FS 11 SEE NOTE 204	
	TERMINAL NET LOSS TRUNKS		2.4D 11.7D AND 4.0D FS 11		
ONE WAY TRANSMISSION TESTING			OWT FS 13	OWM FS 13	
PCI COMPENSATION	TRUNK LOOP RESISTANCE IS	900 OR MORE			NO CROSS CONNECTION REQD
		600 TO 900	CRA FS 13	SP FS 13	
		300 TO 600	CRB FS 13	SP FS 13	
		0 TO 300	CRC FS 13	SP FS 13	
7 DIGIT OR NON-STD 3, 4,5,6 OR 7 DIGIT TEST LINE CODE					SEE NOTE 137
	NO		GA-- FS 13	GB-- FS 13	
	YES		GA-- FS 13	GX-- FS 13	ONE (ADM) REL IS FOR EACH 7 DIGIT CLASS OR NON-STD TEST LINE NUMBER CLASS. THIS (ADM) REL WILL CONTROL A (DM) REL FOR ADDITIONAL CLASS INFORMATION
			GY-- FS 13	GB-- FS 13	
	6 OR 7 DIGIT		OF-- FS 52	ABC-- FS 53	
	5 DIGIT			OI- FS 53	
NON-STD 4 DIGIT TEST LINE NUMBERS			CD-- FS 53	NS-- FS 53	REPLACES TEST LINE CODES SUPPLIED BY THE DM REL

203.

FEATURE			CROSS CONNECT PCHG	CROSS CONNECT PCHG	NOTE
TEST LINE CODE	7 DIGIT OFFICE CODE		A-- B-- C--	DC (0-9) FS 53	USE WITH 4 DIGIT LINE NUMBER
	NON-STD 4-DIGIT TEST LINE CODE				
		TEST LINE CODE	TLD-- TLE-- TLF-- TLG--		IF ONE NON-STD 4-DIGIT CODE IS REQD, THE TEST LINE, BUSY LINE, AND TRANSMISSION TEST CODES MUST ALL BE CROSS CONNECTED
		BUSY LINE CODE	BLD-- BLE-- BLF-- BLG--		
		NOT REQUIRED	BLD--	SKP	
		TRANSMISSION TEST LINE CODE REQD	TRD-- TRE-- TRF-- TRG--	DC(0-9) FS 53	
		6 DIGIT OFFICE CODE	A-- B--	DC(0-9) FS 53	USE WITH 4 DIGIT LINE NUMBER
			C--	SKP FS 53	
ANI TRUNKS	WINK TEST USING APP FIG. 62		ANI FS 13	TD FS 13	SEE NOTE 130
	ANI OUTPULSING USING APP FIG. 66 WITH OPTION OA				7 DIGIT TEST LINE CODE REQUIRED.
					MFR DISC.
		ANI IDENTIFICATION DIGIT	5D 0 OR 1 FS 53	5D FS 53	TU0,1 MUST BE CROSS CONNECTED TO DC0,1 IDENTIFICATION DIGIT WILL VARY WITH TYPE OF TERMINATING OFFICE
	ANI OUTPULSING USING APP FIG. 66 WITH OPTION OB		AC(1-3) FS 13	TD FS 13	TO SELECT ANI IDENTIFICATION NO.
					7 DIGIT TEST LINE CODE REQUIRED
		ASSIGNED ANI CODES	A(1-3) B(1-3) C(1-3) D(1-3) E(1-3) F(1-3) G(1-3) FS 29	DC (0-9) FS 53	A REGULAR SUBSCRIBER LINE NUMBER SHOULD BE ASSIGNED TO THE TEST FRAME FOR IDENTIFICATION PURPOSES
	0+ TSP TRUNKS WITH APP FIG. 66		3D- FS 13	3D4 FS 13	USE 3 DIGIT TEST LINE CODE IN LIEU OF NORMAL 7 DIGIT CODE
			ANI OR AC- FS 13	TD FS 13	

DRAWING ISSUE
47D
48A
52D
53D
55D
60D
61D

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S

SD-25161-01-D3A

PRINTED IN U.S.A.

SD-25161-01-D3A

EQUIPMENT NOTES: (CONT)

204. ALL TERMINALS OTHER THAN INCOMING TRUNKS.

FEATURE	CROSS CONNECT		NOTE
	PCHG	PCHG	
VACANT TERMINALS (IN WORKING TRUNK GROUP)	VT FS 13	D FS 13	
TRUNK TESTED FOR CONTINUITY AND POLARITY ONLY	CP FS 13		
REVERSED POLARITY	RC		
CROSSPOINT ASSOCIATED WITH A TRUNK WITHOUT BATTERY OR TONE OR A TRK WHICH IS VACANT AND NOT IN THE WORKING GROUP	PT FS 13		
CROSSPOINT ASSOCIATED WITH A TRUNK THAT IS NOT TESTED FOR TRANSMISSION OR NOISE		DA FS 11 SEE NOTE 203	
CROSSPOINT ASSOCIATED WITH REORDER (120 IPM), BUSY LINE (60 IPM), MASTER BUSY (30 IPM) OR ANNOUNCEMENT TRUNKS NORMALLY STRAIGHT WITH RESPECT TO BAT. AND GRD (ON-HOOK), AND THE FLASH HAS BEEN REMOVED	CPT FS 13	D FS 13	
PERMANENT SIGNAL OR TONE TRUNKS NORMALLY REVERSED WITH RESPECT TO BAT & GRD (OFF-HOOK)	RCPT		

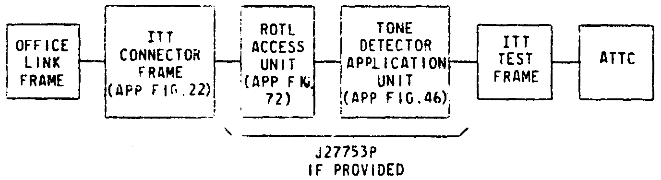
AUTOMATIC TEST CIRCUIT		DWG SIZE 6S	ISSUE 68B
BELL LABORATORIES	SD- 25161-01-		D3B

205. (MFR DISC.) AT KANSAS CITY WHEN INCOMING SELECTORS THAT FUNCTION WITH FINAL SELECTOR CKT WHICH AWAIT SENDER AFTER UNITS SELECTION ARE TESTED CONNECT TERMINALS L N OPR TO TERMINAL 28, SEE NOTE 108.

206. (MFR DISC.) FURNISH ONE APP FIG. 8 PER TWO (G) RELAYS THAT ARE CROSS CONNECTED FOR TESTING REPEATING GROUND CUT-OFF INCOMING SELECTORS CROSS CONNECT OD-199D TERMINALS OF THE CROSSPOINTS THAT ARE CONNECTED TO REPEATING INCOMING SELECTORS TO ONE OF THE R1 TERMINALS AND THE CORRESPONDING A TERMINALS TO ONE OF THE (G) RELAYS AS REQD PER NOTE 102. WHEN APP FIG. 8 IS PROVIDED FURNISH APP FIG. D PER APP FIG. 5. WHEN APP FIG. 8 IS NOT PROVIDED FURNISH APP FIG. C PER APP FIG. 5.

207. VARISTOR (A) SHALL BE WIRED AS FOLLOWS:
   A. FROM 5T(RP5) TO VARISTOR AND FROM TIP OF JACK TO VARISTOR.
   B. FROM SLEEVE OF JACK TO VARISTOR AND FROM CONTACT OF JACK TO VARISTOR.

208. DUE TO THE LOW ALLOWABLE LOSS OF 0.3 db OR LESS BETWEEN THE OFFICE LINK FRAME AND THE ATTC FRAME (THROUGH THE ITT AND ITTC FRAMES) IN CROSSBAR TANDEM, THE LENGTH OF THE MEAN RUN OF THE TIP AND RING LEADS SHOULD NOT EXCEED 300 FEET OF 24 GAUGE OR 400 FEET OF 22 GAUGE CABLE. SINCE THIS MEAN RUN MAY ROUTE AS SHOWN BELOW. IT IS RECOMMENDED THAT THE REMOTE OFFICE TEST LINE CONNECTOR CONTROL UNIT AND THE TONE DETECTOR UNIT BE MOUNTED ON THE SAME FRAME.



209. LEADS TH(0-9) TO THE TELETYPEWRITER CONTROL CKT SHALL BE CONNECTED SO THAT THE TH- LEAD NUMBER EQUALS THE UNITS DIGIT OF THE CONNECTOR NUMBER. LEADS TTH (0-3) SHALL BE ASSIGNED TO EQUAL THE TENS DIGIT OF THE CONNECTOR NUMBER.

210. TEST LEVEL, TRIMMER ADJUSTMENT:
THE LEVEL OF POWER OF THE MEAN OUTGOING TRUNK SHALL BE 0DBM±.03 DBM MEASURED AT THE OFFICE LINK FRAME WHEN THE CABLE FROM THE INCOMING TRUNK CONNECTOR (ITC) IS CONNECTED DIRECTLY TO THE OFFICE LINK FRAME (A), AND SHALL BE 0DBM±.03 DBM PLUS THE LOSS OF THE CABLE BETWEEN THE HMDF AND THE OFFICE LINK FRAME, MEASURED AT THE HMDF WHEN CABLE FROM THE (ITC) IS CONNECTED TO THE HMDF (B). THE LATTER WILL BE A MINUS READING THAT REFLECTS THE MENTIONED LOSS. (SEE SKETCH)

THE MEAN OUTGOING TRUNK IS THAT TRUNK MOST REPRESENTATIVE OF THE AVERAGE LOSS OF THE TRUNK CABLING BETWEEN THE OFFICE LINK FRAME AND THE TEST CKT.

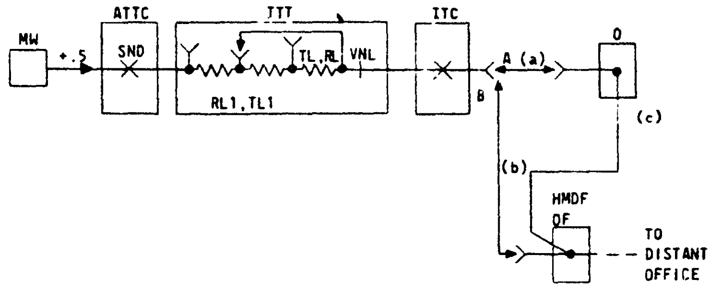
210. (CONT) WITH THE AUTOMATIC TRANSMISSION TEST CKT (ATTC) IN ITS SENDING CONDITION AND THE AUTOMATIC INCOMING TRUNK TEST CKT (AITT) (VNL) RELAY NORMAL, THE TL, TL1 AND TR, TR1 TRIMMERS ARE ADJUSTED AS FOLLOWS:

A. IF CONNECTOR IS CABLED DIRECTLY TO OFFICE LINK FRAME:
   1. DISCONNECT THE T & R OF LEAD (a) AT THE OFFICE LINK FRAME LOCATION OF THE MEAN TRUNK.
   2. CONNECT MEASURING SET TO THESE LEADS AND ADJUST THE TL, TL1, RL, RL1 TRIMMERS IN THE (ITT) TO PROVIDE 0DBM±.03 DBM AT THIS POINT..

B. IF CONNECTOR IS CABLED VIA HMDF:
   1. DISCONNECT MDF JUMPER TO DISTANT OFFICE.
   2. DISCONNECT T & R OF LEAD (c) AT OFFICE LINK FRAME.
   3. CONNECT TMS TO THESE LEADS AND RECORD LEVEL.
   4. DISCONNECT T & R OF LEAD (b) AT HMDF (OF BLOCK).
   5. CONNECT TMS TO THESE LEADS AND RECORD LEVEL.
   6. DETERMINE DIFFERENCE OF LEVELS RECORDED IN STEPS 3 & 5.
   7. WITH TMS STILL CONNECTED AS IN STEP 5, ADJUST TL, TL1, RL, RL1 TRIMMERS IN AITT UNTIL THE LEVEL IS 0 DBM MINUS THE DIFFERENCE OBTAINED IN STEP 6.

EXAMPLE: IF LEVEL IN STEP 3 WAS +0.1 DBM AND THE LEVEL IN STEP 5 WAS +0.3 DBM, TRIMMERS SHALL BE ADJUSTED IN STEP 7 TO GIVE LEVEL OF -0.2 DBM ±0.03 DBM.

NOTE: TMS USED MUST READ 0 DBM AT 1MW AT 900 OHM.



211. THIS LEAD RUN WHEN MW SUPPLY IS PROVIDED AND ITT FRAME IS ADJACENT TO AUTOMATIC TRANSMISSION TEST AND CONTROL FRAME.

212. IN CROSSBAR TANDEM OFFICES EQUIPPED WITH 4-WIRE SWITCHES THE (TH) TERMINALS IN CAD 15 ARE OMITTED AND SWITCHBOARD CABLE RUN DIRECTLY TO RELAYS.

213. DUE TO SPACE LIMITATIONS ON THE NO.1 CROSSBAR FRAME THE (TST GR 1-4) KEYS,SV OPTION, ARE PROVIDED AS 2BL KEY UNITS. THE 2BL KEY UNIT IS THE COMPONENT PART OF A CIE KEY.

214. THE MAXIMUM RUN OF THE T,R,T1,R1,SA,SB,S1A, AND S1B LEADS FROM ANY OFFICE LINK FRAME VIA THE ITC FRAMES AND ROTL ACCESS UNIT TO THE ROTL SHALL NOT EXCEED 600 FEET. THE MAXIMUM RUN OF THE T AND R LEADS FROM THE OFFICE LINK FRAME VIA THE ITC FRAMES, THE ROTL ACCESS UNIT, THE ROTL, AND THE ROTL TEST LINE ACCESS CKT TO THE RESPONDER SHALL NOT EXCEED 1000 FEET. THESE RUNS SHALL BE 24 GAUGE OR LARGER.

215. WITH THE (RD) RELAY OPERATED AND (PD) RELAYS NORMAL, STRAP RESISTORS (CA0) AND (CA1) TO PROVIDE 0.0 DBm ±.03dB AT THE (RTR) JACK USING THE MILLIWATT SIGNAL FROM THE ROTL RESPONDER. WITH THE (BD) RELAY OPERATED AND (PD) RELAYS NORMAL, STRAP RESISTORS (CA2) AND (CA3) TO PROVIDE 0.0 DBm ±.03dB AT THE (BTR) JACK USING THE ROTL MILLIWATT SUPPLY. CROSS CONNECT EX--,EY-- AND EZ-- FOR EVEN NUMBERED OFFICE LINK FRAMES, AND OX--,OY-- AND OZ-- FOR ODD NUMBERED OFFICE LINK FRAMES TO GND AS REQUIRED TO MAINTAIN SWITCH NO. 4 ON EACH OFFICE LINK FRAME WITHIN ±.03dB OF SWITCH NO. 4 ON ALL OTHER OFFICE LINK FRAMES. SEE BSP 220-462-000 FOR PROCEDURES.

216. ON NEW CIRCUITS, AND WHEN ADDITIONAL CONNECTORS ARE ADDED TO EXISTING CIRCUITS, THE CONNECTOR ASSIGNMENT (ITT GROUP TO OFFICE LINK FRAME CORRESPONDENCE) SHOULD CONFORM TO THE FOLLOWING TABLE. WHEN THE CKT IS MODIFIED FOR OPERATION WITH ROTL OR SSTI, THE CONNECTOR ASSIGNMENTS SHALL BE BROUGHT INTO AGREEMENT WITH THE TABLE. (THIS MAY BE ACCOMPLISHED BY RECONNECTING LEADS 00-39 AND C00-39, CAD 11, AND RESTAMPING DESIGNATIONS ON THE INDIVIDUAL CONNECTORS. IF THE CKT IS ARRANGED WITH A TELETYPEWRITER, ADDITIONAL WIRING CHANGES ARE REQUIRED TO CONFORM TO NOTE 209).

ASSIGNMENT OF G- CONNECTORS TO OFFICE LINK AND EXTENSION FRAMES

OFFICE LINK FRAME PAIR	OFFICE LINK FRAMES			OFFICE EXTENSION FRAMES	
	TRUNK LEVELS 0,2,4,6,8	TRUNK LEVELS 1,3,5,7,9		TRUNK LEVELS 10,11,12,13,14 (1ST EXTENSION)	TRUNK LEVELS 1,3,5,7,9 (2ND EXTENSION)
		EXTENSION FRAMES USED	NO EXTENSION FRAMES		
0-1	G-00	G-10	G-01	G-01	G-20
2-3	G-02	G-11	G-03	G-03	G-21
4-5	G-04	G-12	G-05	G-05	G-22
6-7	G-06	G-13	G-07	G-07	G-23
8-9	G-08	G-14	G-09	G-09	G-24
10-11	G-10	-	G-11	G-11	G-25
12-13	G-12	-	G-13	G-13	G-26
14-15	G-14	-	G-15	G-15	G-27
16-17	G-16	-	G-17	G-17	G-28
18-19	G-18	-	G-19	G-19	G-29

ADDITIONAL TRUNKS ASSOCIATED WITH A PANEL OFFICE IN SAME BUILDING SHALL BE ASSIGNED TO G-30 THROUGH G-39.

INFORMATION NOTES:

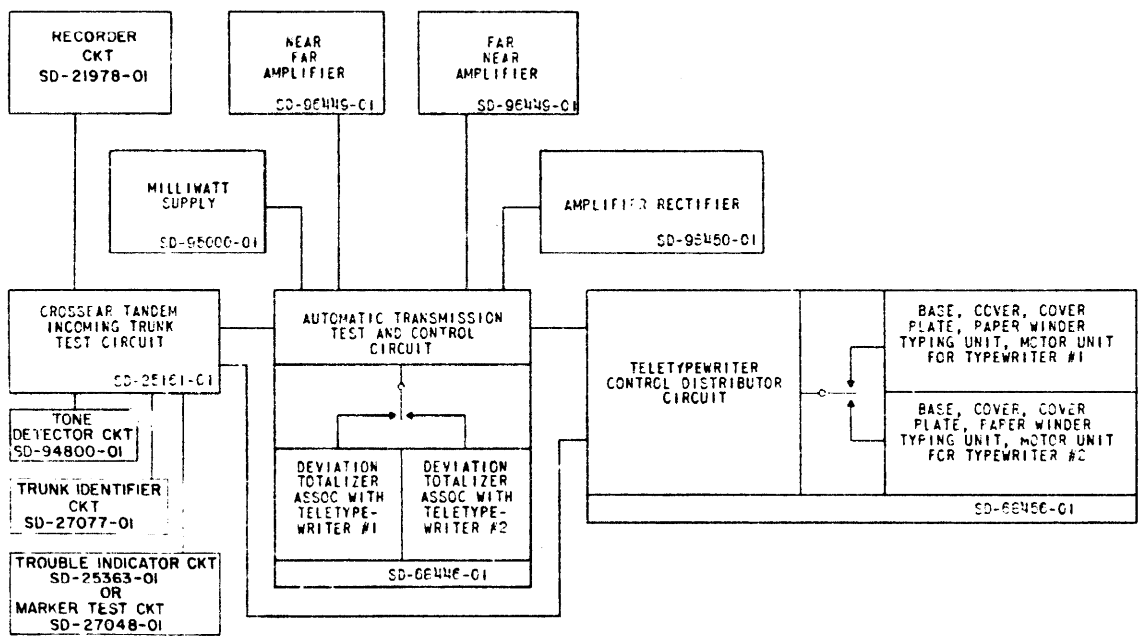
301. UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS.

302.

DESIG	FIGS.	MAKE AND BREAK INTERVALS
TA	3	1 SEC, 20 SEC, .8 SEC, .2 SEC, 1 SEC (ONE CYCLE)
TA1	3	.93 SEC, 5 SEC, .93 SEC, .14, .93 SEC (ONE CYCLE)
PC	3	.295 SEC, .005 SEC, .195 SEC, .005 SEC, .295 SEC (ONE CYCLE)
A	5	
B	5	
OFL	12	
C	6	.525 SEC, .005 SEC, .525 SEC, .005 SEC, .525 SEC (ONE CYCLE)
DL	21	
DL	21	.275 SEC, 2 SEC, .496 SEC, .235 SEC, .275 SEC (ONE CYCLE)

303. ALL CURRENT FLOW TESTS HAVE BEEN COMPUTED ON A BASIS OF HAVING A MIN OF 46.5V AND A MAX OF 50V. ALL LOCAL CIRCUIT APPARATUS WILL OPERATE ON A VOLTAGE RANGE OF 45-50V.

304. BLOCK DIAGRAM



305. APP FIGURES 42 AND 43 PROVIDE FOR DETECTION OF TONES INTERRUPTED AT 120 AND 60 IPM, STEADY NOISE, AND TRIP FAILURE AND PRE-TRIP FAILURE SIGNALS FROM A SYNCHRONOUS TEST LINE.

306. TO PROVIDE A 6 SEC MIN TO 7 SEC MAX INTERVAL FOR ONE-WAY TRANSMISSION TESTING (APP FIG. 51 AND "UW" OPTION), STRAP THE G12 RESISTOR AS REQUIRED. TO INCREASE TIME, CUT STRAP. TO DECREASE TIME ADD STRAP. (SEE TIMING REQUIREMENTS, TEST NOTE 23)

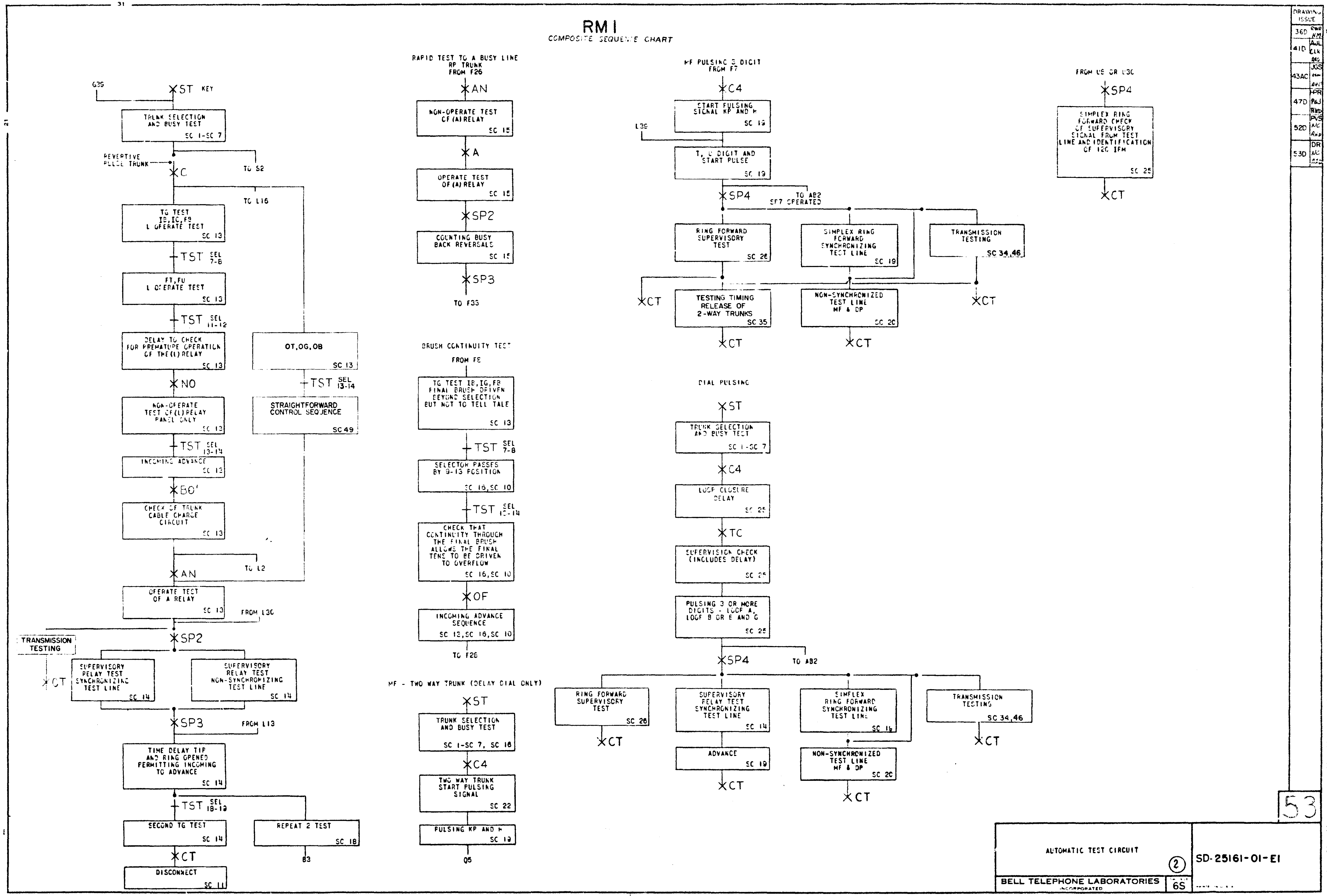
DRAWING ISSUE
360
450
470
520

52

AUTOMATIC TEST CIRCUIT ② SD-25161-01-D4

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-25161-01-D4



RM1
COMPOSITE SEQUENCE CHART
ST KEY
G39
TRUNK SELECTION AND BUSY TEST SC 1-SC 7
REVERTIVE PULSE TRUNK
TO S2
C
TO L16
TG TEST IB,IC,F9 L OPERATE TEST SC 13
TST SEL 7-8
FT,FU L OPERATE TEST SC 13
TST SEL 11-12
DELAY TO CHECK FOR PREMATURE OPERATION OF THE (L) RELAY SC 13
OT,OG,OB SC 13
TST SEL 13-14
NO
NON-OPERATE TEST OF (L) RELAY PANEL ONLY SC 13
STRAIGHTFORWARD CONTROL SEQUENCE SC 49
TST SEL 13-14
INCOMING ADVANCE SC 13
BO'
CHECK OF TRUNK CABLE CHARGE CIRCUIT SC 13
TO L2
AN
OPERATE TEST OF A RELAY SC 13
FROM L30
TRANSMISSION TESTING
SP2
CT
SUPERVISORY RELAY TEST SYNCHRONIZING TEST LINE SC 14
SUPERVISORY RELAY TEST NON-SYNCHRONIZING TEST LINE SC 14
SP3
FROM L13
TIME DELAY TIP AND RING OPENED PERMITTING INCOMING TO ADVANCE SC 14
TST SEL 18-19
SECOND TG TEST SC 14
REPEAT 2 TEST SC 18
B3
CT
DISCONNECT SC 11
RAPID TEST TO A BUSY LINE RP TRUNK FROM F26
AN
NON-OPERATE TEST OF (A) RELAY SC 15
A
OPERATE TEST OF (A) RELAY SC 15
SP2
COUNTING BUSY BACK REVERSALS SC 15
SP3
TO F33
BRUSH CONTINUITY TEST
FROM F8
TG TEST IB,IG,F8 FINAL BRUSH DRIVEN BEYOND SELECTION BUT NOT TO TELL TALE SC 13
TST SEL 7-8
SELECTOR PASSES BY 9-13 POSITION SC 16,SC 10
TST SEL 13-14
CHECK THAT CONTINUITY THROUGH THE FINAL BRUSH ALLOWS THE FINAL TENS TO BE DRIVEN TO OVERFLOW SC 16,SC 10
OF
INCOMING ADVANCE SEQUENCE SC 13,SC 16,SC 10
TO F26
MF - TWO WAY TRUNK (DELAY DIAL ONLY)
ST
TRUNK SELECTION AND BUSY TEST SC 1-SC 7, SC 18
C4
TWO WAY TRUNK START PULSING SIGNAL SC 22
PULSING KP AND H SC 19
Q5
MF PULSING 3 DIGIT FROM F7
C4
START PULSING SIGNAL KP AND H SC 19
L39
T, U DIGIT AND START PULSE SC 19
SP4
TO AB2 SF7 OPERATED
RING FORWARD SUPERVISORY TEST SC 26
SIMPLEX RING FORWARD SYNCHRONIZING TEST LINE SC 19
TRANSMISSION TESTING SC 34,46
CT
TESTING TIMING RELEASE OF 2-WAY TRUNKS SC 35
NON-SYNCHRONIZED TEST LINE MF & DP SC 20
DIAL PULSING
ST
TRUNK SELECTION AND BUSY TEST SC 1-SC 7
C4
LOOP CLOSURE DELAY SC 25
TC
SUPERVISION CHECK (INCLUDES DELAY) SC 25
PULSING 3 OR MORE DIGITS - LOOP A, LOOP B OR E AND G SC 25
SP4
TO AB2
RING FORWARD SUPERVISORY TEST SC 26
SUPERVISORY RELAY TEST SYNCHRONIZING TEST LINE SC 14
SIMPLEX RING FORWARD SYNCHRONIZING TEST LINE SC 19
TRANSMISSION TESTING SC 34,46
ADVANCE SC 19
NON-SYNCHRONIZED TEST LINE MF & DP SC 20
FROM US OR L30
SP4
SIMPLEX RING FORWARD CHECK OF SUPERVISORY SIGNAL FROM TEST LINE AND IDENTIFICATION OF 120 IPM SC 25
CT
AUTOMATIC TEST CIRCUIT
BELL TELEPHONE LABORATORIES INCORPORATED
6S
SD-25161-01-E1
DRAWING ISSUE
36D
41D
43AC
47D
52D
53D

53

SD-25161-01-E1

SC 1
START

MANUAL START
ST KEY
HI
ST
TD
BY
0-29 s
TA (F) INT
U17

NO. 1 AUTO. START
CL TIMER (RCDR)
15 MIN
CL TIMER (RCDR)
TMST (RCDR)
ST (RCDR)
AST (RCDR)
UR
TM

CROSSBAR TANDEM AUTO. START
AST KEY
RN
RETURN TO NORMAL
RNI
RNA
RN
RNI
TIMING PERIOD
AST TIMER
AST
ASTA
RNA
PTR (TTY)
PR
SO
ASTF
15 MIN
AST TIMER
ASTF

FROM SC 8 HI, 4E13

FROM SC 39 ST, 18Y7

G SEL
G SEL 1-2
S SEL
S SEL 1-2
H SEL
H SEL 1-2
CIA-

WITHOUT APP FIG. 72
WITH APP FIG. 72
CONNECTOR IDLE
CONNECTOR BUSY
CIB-
CIC-
CID-
GR
IBD
ICB
CBY
BY
TO SC 54 TA, 27S6

CONNECTOR RELEASED
ICB
ICT
CBY
ISL
HLD
IBD
BY
TO SC 54 CBY, 27M26

CONN SW SEL 0
SO
TO SC 25, S, 11F2
S, Y3

H33
S
TO SC 17 H, 6C5
H
SR
HI
FROM SC 17, H SEL, 8A22 OR SC 45 H SEL, 20Y21
CONN SW HOLD
G-
DM-
CPT
TO SC 34, DM-, 16L2, OR SC 39, SBT, 18AB11, OR SC 45, PT, 20AA5, OR SC 46, DM-, 21K5, OR SC 48, DM-, 21AB31
TO SC 19 MFC, 9L7, OR SC 36 STF, 17F26, OR SC 41 DM-, 1933, OR SC 52, MFC, 25N2
TO SC 42 SU, 19AC4

FROM SC 5, HI, 3A/F23, OR SC 6, HI, 3A/033, OR SC 7, HI, 38/Y30, OR SC 18, HI, 8U38

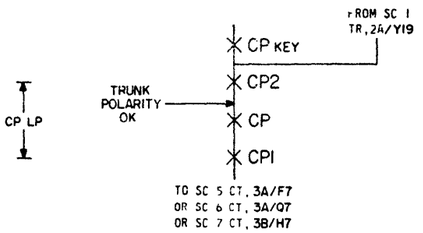
START BUSY TEST
TI
TO SC 39 DID, 18Y12, OR SC 45 TI, 20Y6
TO SC 13, TII, 5E2, OR SC 44, RBT, 20P5
TII
IF TRUNK IS IDLE
TI
TO SC 19, TI, 9E4, OR SC 52, TI, 25D1, OR SC 51, TI, 23J1
TR
SR
TD
TO SC 2, CP2, 2B/D5, OR SC 4, BY, 2B/Y4, OR SC 15, BL, 7B/F3, OR SC 36, C3, 17F28, OR SC 42, ST, 19AA4

D20
IF TRUNK IS BUSY (TI) FAILS TO RELEASE
BUSY TIMING
TO SC 3 ST, 2B/N4

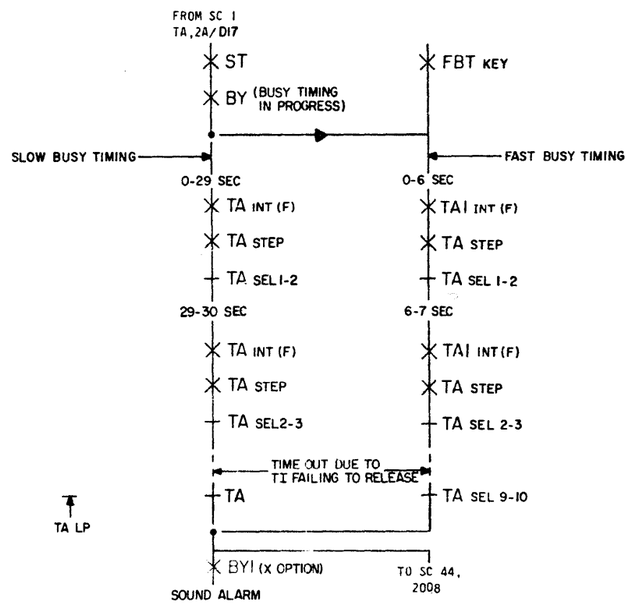
BELL TELEPHONE LABORATORIES INCORPORATED
AUTOMATIC TEST CIRCUIT
SIZE 6S
SD-25161-01-E2A
ISSUE 65A

BURNS 44-131 24092
E-7461-B (10-71)

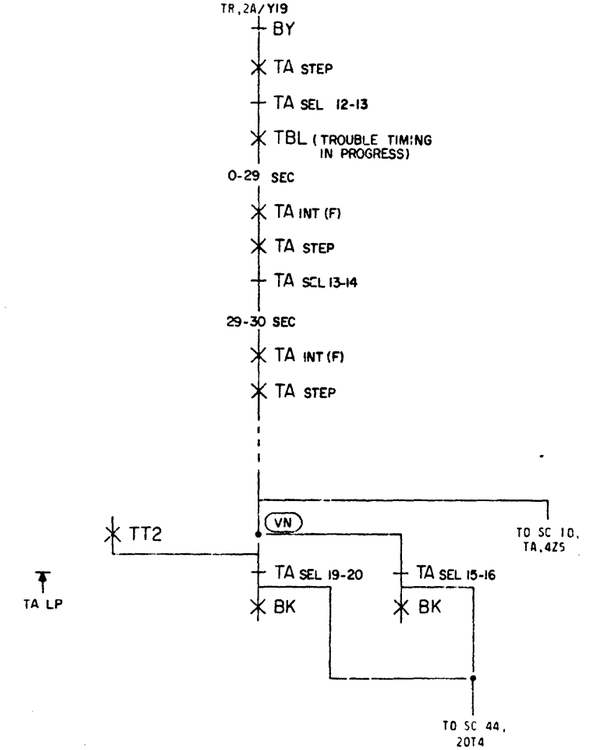
SC 2
CONTINUITY REVERSAL TEST (RP)



SC 3
BUSY TIMING



SC 4
TROUBLE TIMING, FOR REGULAR NO TROUBLE TEST SHOULD COMPLETE BEFORE BK OPERATES



DRAWING ISSUE 61D

ISSUE 65A

AUTOMATIC TEST CIRCUIT (2) SD-25161-01-E2B

BELL TELEPHONE LABORATORIES INCORPORATED SIZE 6S

SD-25161-01-E2B

SC 5

ADVANCE H SELECTOR AFTER COMPLETION OF TEST

FROM SC 33, CT, 15U22 OR SC 41, CT, 19S30

TEST COMPLETED FROM SC 2, CPI, 2B/D7 OR SC 14, TST, 7A/AC24 OR SC 20, SP6, 10M25 OR SC 26, SP6, 12AC26 OR SC 28, SP6, 13Q24

FROM SC 39, CA2, 18S26 OR SC 39, CA2, 18Y27 OR SC 39, CA2, 18AC19

- CT REG
- CAI
- CA2
- CA3
- TII
- STT (FIGURE 28 & 29 PROVIDED)
- TR
- H STEP
- H SEL 2-3
- CONN SW HOLD 0
- H
- HI
- H STEP
- H SEL 3-4
- CONN SW HOLD 1
- H
- SR
- HI

OFF NORMALS — A — C2 — C4 — CT REG — CAI — CA2 — CA3

START BUSY TEST BT GRD TO SC 1 TI, 2A/Y7

SC 6

ADVANCE S SELECTOR AFTER 20TH TRUNK HAS BEEN TESTED

FROM SC 33, CT, 15U22 OR SC 41, CT, 19S30

TEST COMPLETED FROM SC 2, CPI, 2B/D7 OR SC 14, TST, 7A/AC27 OR SC 18, TST, 8U21 OR SC 20, SP6, 10M25 OR SC 26, SP6, 12AC26 OR SC 28, SP6, 13Q24

- CT REG
- CAI
- CA2
- CA3
- TR
- H STEP
- H SEL 40-41
- S STEP
- S SEL 2-3
- CONN SW SEL 0
- S
- H STEP
- H SEL 43-44
- S STEP
- S SEL 3-4
- CONN SW SEL 1
- SO
- S
- H STEP
- H SEL NOR 1
- H STEP
- H SEL 1-2
- CONN SW HOLD 0
- H
- SR
- HI

OFF NORMALS — A — SEE SC 5 — CT REG — CONN SW HOLD 19 — H — HI — CAI — CA2 — CA3

START BUSY TEST BT GRD TO SC 1 TI, 2A/Y12

SD-25161-01-E3A

ISSUE 65A

AUTOMATIC TEST CIRCUIT (2) SD-25161-01-E3A

BELL TELEPHONE LABORATORIES INCORPORATED SIZE 6S

SC 7

ADVANCE G OR SA SELECTORS
AFTER ALL TRUNK CIRCUITS ON
CROSSBAR SWITCH HAVE BEEN TESTED

FROM SC 33,CT,15U16
OR SC 41,CT,19S30

TEST COMPLETED
FROM SC 2,CPI, 2B/D7,
OR SC 14,TST, 7A/AC24,
OR SC 18,TST, 8U21,
OR SC 20,SP6,10M25,
OR SC 26,SP6,12AC26,
OR SC 28,SP6,13D24

- CT REG
- CAI
- CA2
- CA3
- TR
- H STEP
- H SEL 40-41
- S STEP
- S SEL 20-21
- G STEP
- G SEL 2-3
- CIA
- CIB
- CIC
- CID
- GR
- S STEP
- S SEL 21-22
- G STEP
- G SEL 3-4

CIA,Y7

A
OFF NORMALS
SEE SC 5

- CT REG
- lil
- CAI
- CONN SW HOLD 19
- H
- CA2
- CA3
- S
- H STEP
- H SEL 43-44

WITH APP FIG. 72

- ICT
- ISL
- HLD

G,H26

- CIA-
- CIB-

WITHOUT APP FIG. 72

- CIC-
- CID-
- GR
- S STEP
- S SEL NOR. I
- S STEP
- S SEL 1-2

WITH APP FIG. 72

CONNECTOR IDLE

- CIC-
- IBD
- GR
- S STEP
- S SEL NOR. I
- S STEP
- S SEL 1-2
- ISL
- HLD
- IBD

CONNECTOR BUSY

- CIC-
- IBD
- CID-
- GR
- ICT

TO SC 54
TA,27S6

- ICB
- CBY
- BY

CONNECTOR RELEASED

- ICB
- CBY
- BY

TO SC 54
CBY,27M26

- CONN SW SEL 0

SO

- S
- H STEP
- H SEL NOR I
- H STEP
- H SEL 1-2
- CONN SW HOLD 0
- H

SR

- HI

START BUSY TEST
BT GRD
TO SC 1
TI,2A/Y12

ISSUE 65A

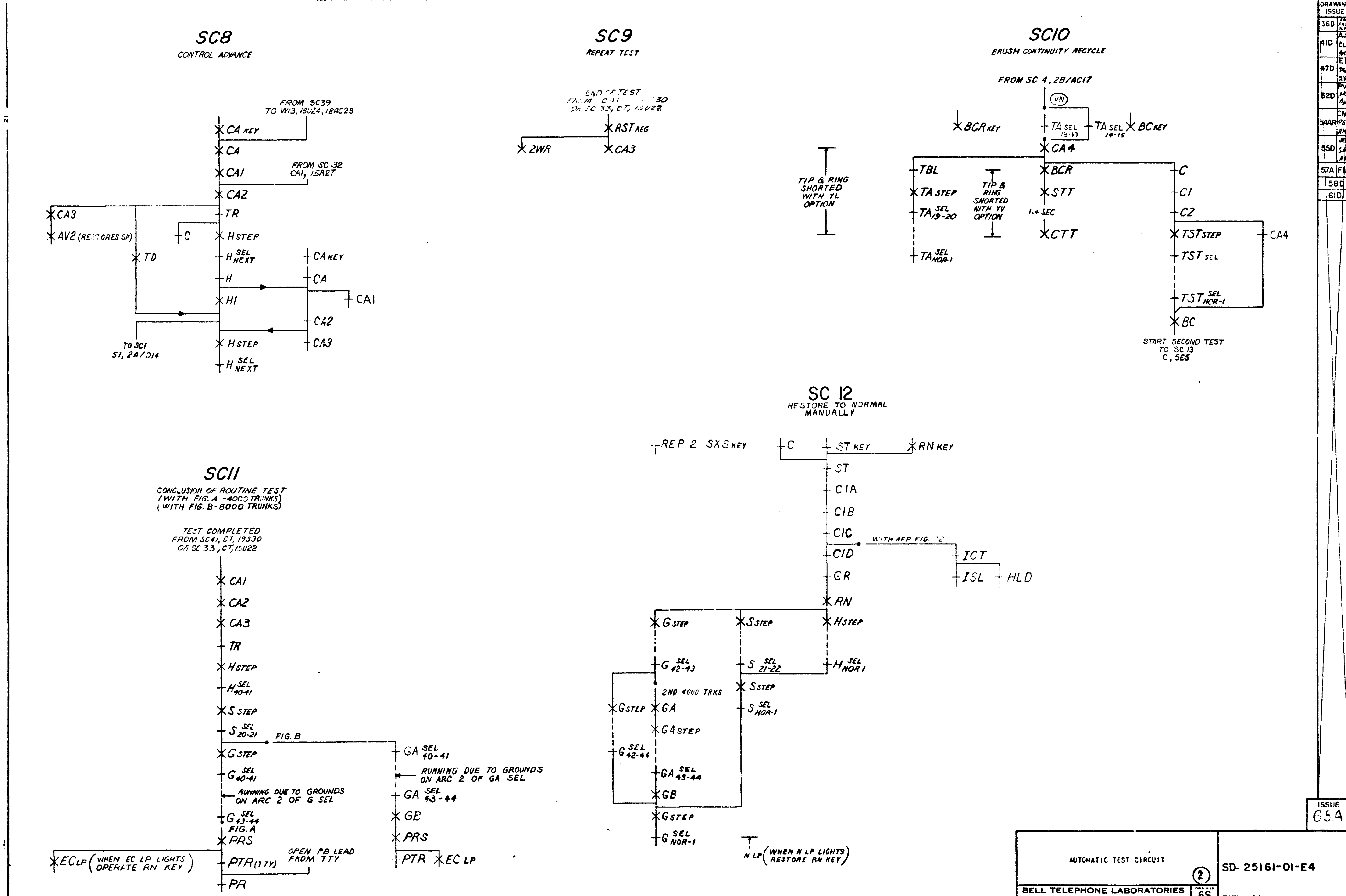
AUTOMATIC TEST CIRCUIT

SD-25161-01-E38

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

BRUNING 46-131 24092


SC8
CONTROL ADVANCE
FROM SC39 TO W13, 18U24, 18AC28
FROM SC 32 CA1, 15A27
CA KEY
CA
CA1
CA2
CA3
AV2 (RESTORES SP)
TD
TR
H STEP
H SEL NEXT
H
H1
C
CA KEY
CA
CA1
CA2
CA3
TO SC1 ST, 2A/D14
SC9
REPEAT TEST
RST REG
2WR
CA3
SC10
BRUSH CONTINUITY RECYCLE
FROM SC 4, 2B/AC17
VN
BCR KEY
TA SEL 15-19
TA SEL 14-15
BC KEY
CA4
TBL
BCR
C
TA STEP
STT
C1
TA SEL 19-20
C2
TIP & RING SHORTED WITH YL OPTION
TIP & RING SHORTED WITH YV OPTION
1.4 SEC
CTT
TST STEP
CA4
TA SEL NOR-1
TST SEL
TST SEL NOR-1
BC
START SECOND TEST TO SC 13 C, 5E5
SC 12
RESTORE TO NORMAL MANUALLY
REP 2 SXS KEY
C
ST KEY
RN KEY
ST
C1A
C1B
C1C
WITH APP FIG. 2
C1D
ICT
CR
ISL
HLD
RN
G STEP
S STEP
H STEP
G SEL 42-43
S SEL 21-22
H SEL NOR 1
S STEP
2ND 4000 TRKS
G STEP
GA
S SEL NOR-1
GA STEP
G SEL 42-44
GA SEL 43-44
GB
G STEP
G SEL NOR-1
N LP (WHEN N LP LIGHTS RESTORE RN KEY)
SC11
CONCLUSION OF ROUTINE TEST
(WITH FIG. A -4000 TRUNKS)
(WITH FIG. B -8000 TRUNKS)
TEST COMPLETED FROM SC41, CT, 19S30 OR SC 33, CT, 15U22
CA1
CA2
CA3
TR
H STEP
H SEL 40-41
S STEP
S SEL 20-21
FIG. B
G STEP
GA SEL 40-41
G SEL 40-41
RUNNING DUE TO GROUNDS ON ARC 2 OF GA SEL
RUNNING DUE TO GROUNDS ON ARC 2 OF G SEL
GA SEL 43-44
G SEL 43-44
GB
FIG. A
PRS
PRS
EC LP (WHEN EC LP LIGHTS OPERATE RN KEY)
OPEN PB LEAD FROM TTY
PTR (TTY)
PTR
EC LP
PR
ISSUE 65A

AUTOMATIC TEST CIRCUIT

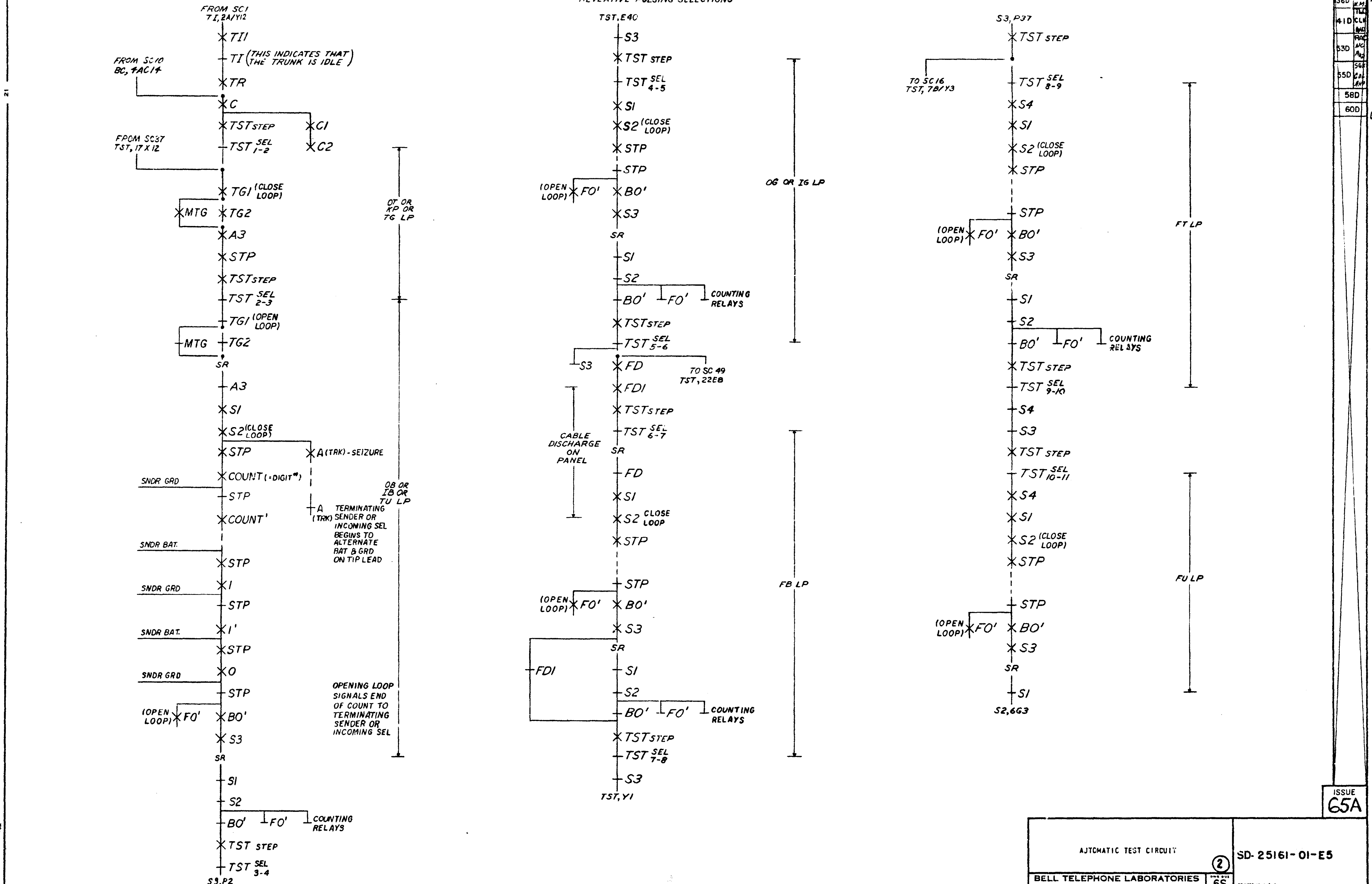
SD-25161-01-E4

BELL TELEPHONE LABORATORIES INCORPORATED

6S

PART OF SC 13

REVERTIVE PULSING SELECTIONS



AUTOMATIC TEST CIRCUIT

SD-25161-01-E5

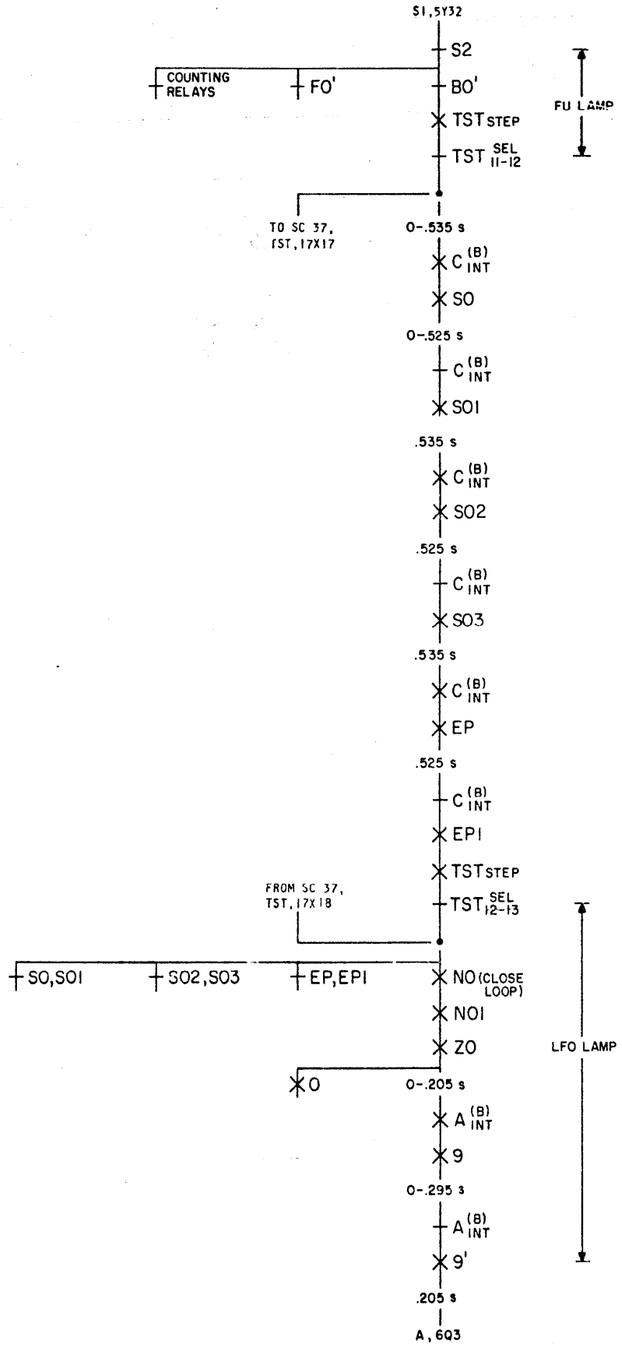
BELL TELEPHONE LABORATORIES INCORPORATED

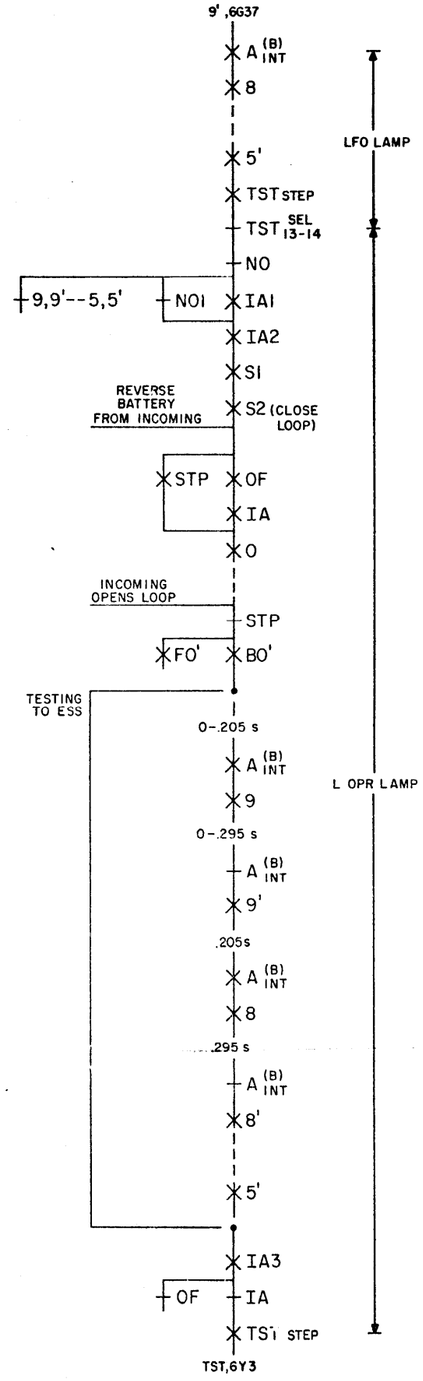
6S

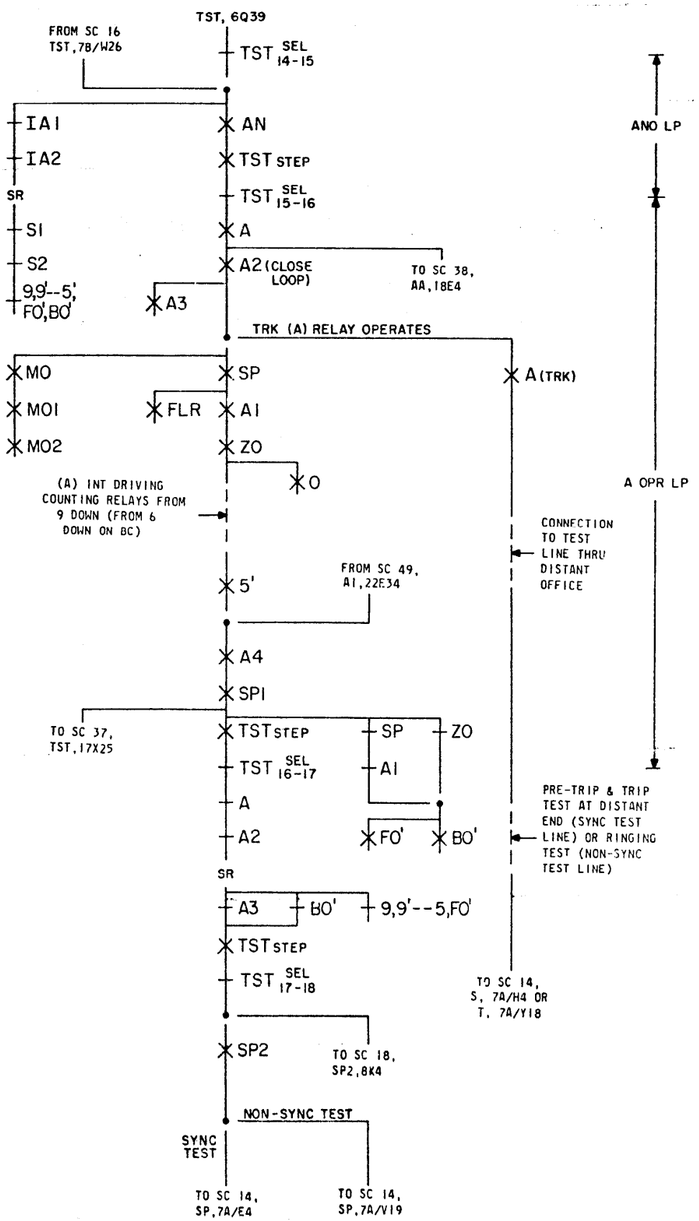
SD-25161-01-E5

PART OF SC 13

REVERTIVE PULSING SELECTION







DRAWING ISSUE 60D

60

AUTOMATIC TEST CIRCUIT

(2) SD-25161-01-E6

BELL TELEPHONE LABORATORIES INCORPORATED

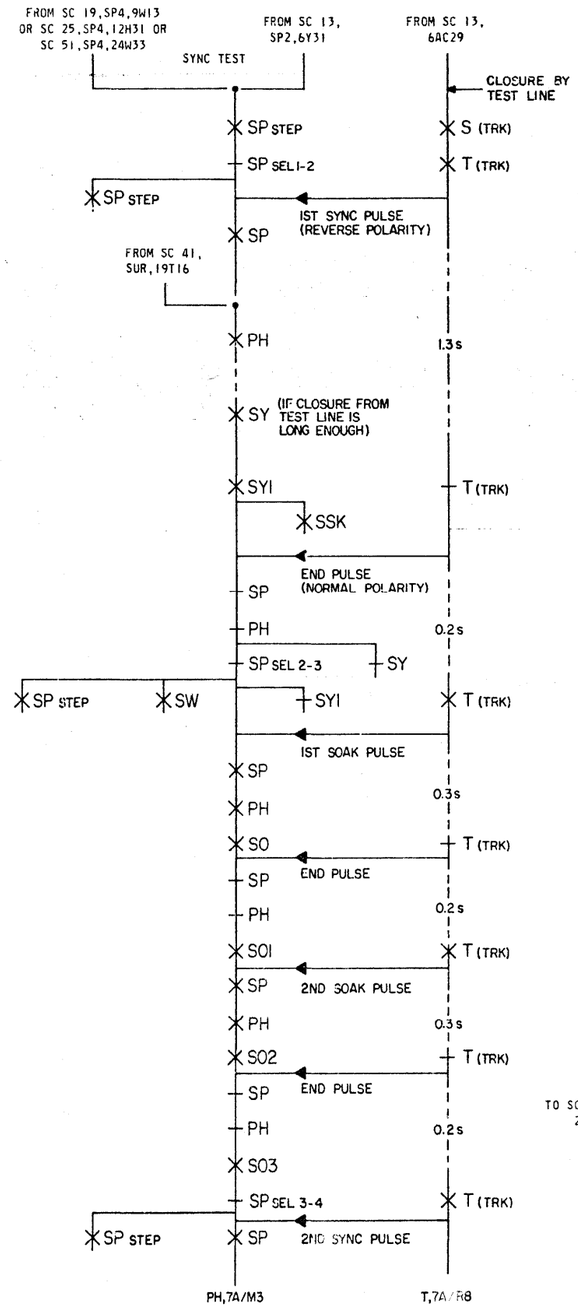
DWG SIZE 6S

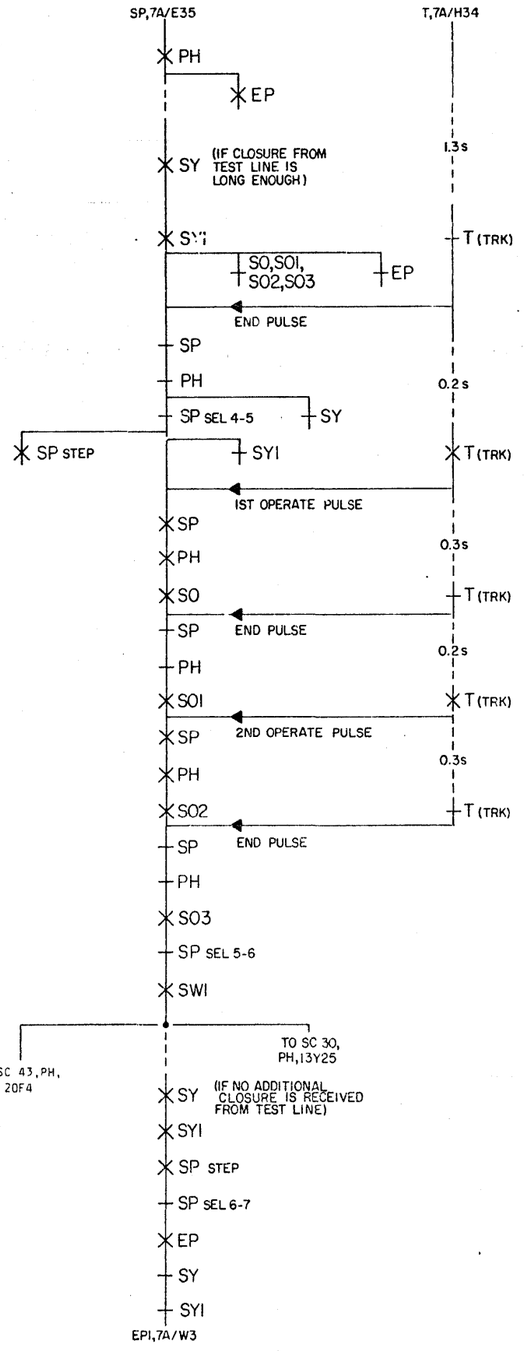
PRINTED IN U.S.A.

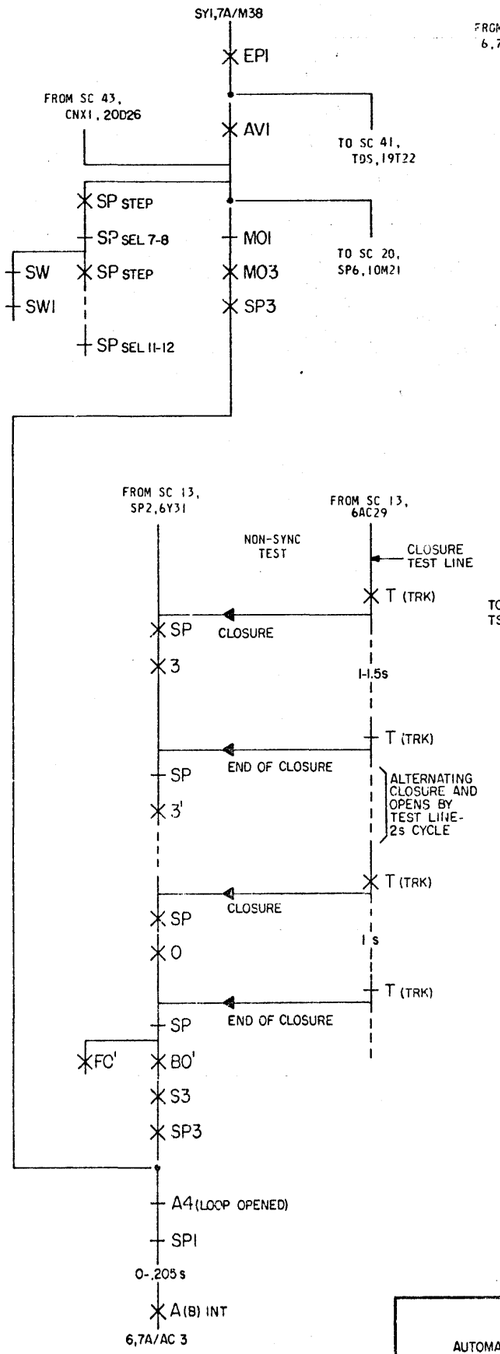
SD-25161-01-E6

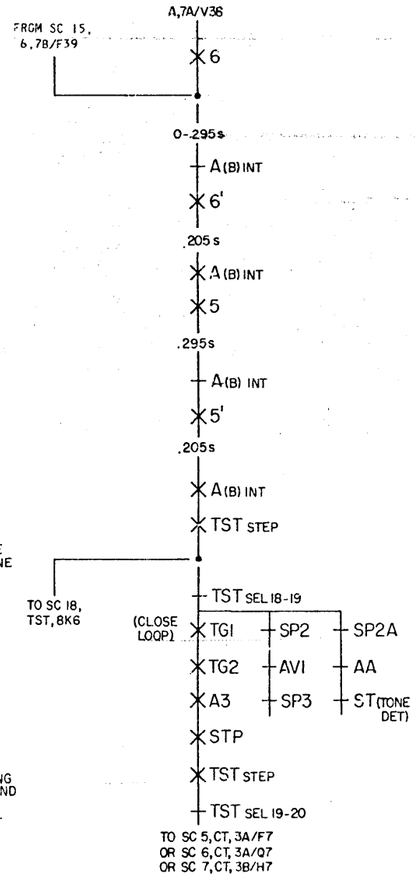
SC 14

TESTING USING SYNCHRONIZED OR NON-SYNCHRONIZED TEST LINE (RD, DP & MF)









DRAWING ISSUE 60D

ISSUE 65A

AUTOMATIC TEST CIRCUIT (2) SD-25161-01-E7A

BELL TELEPHONE LABORATORIES INCORPORATED — DWG SIZE 6S — PRINTED IN U.S.A.

SC 15
RAPID TEST TO A BUSY LINE

FROM SC 1
TR,2A/Y19

TF
NTL
BL
BLI (SEE NOTE 1)
C
SHOWN ON SC 13,
5E5 TO 6Y3
AN
ANI
LOOP CLOSED
SP
A2
ZO
A3
O
0-.535 s
(B)
C INT
SO
SHOWN ON SC 13,
6G11 TO 6G24
EPI
5'
TST STEP
TST SEL 15-16
AN
ANI
A
A4
SPI
TST STEP
TST SEL 16-17
A
TST STEP
TST SEL 17-18
TONE ONLY
BUSY BACK REVERSALS
SP
SP2
SP2A
3
AA
END REVERSAL
SP
ST (TONE DET)
3'
END REVERSAL
SP
TBY
BO'
FO'
S3
SP3
TIP & RING OPENED
A4
SPI
0-.205 s
(B)
A INT
6
TO SC 14,
6,7A/AC3

ANO LP
A OPR LP
SR TST LP

SC 16
BRUSH CONTINUITY TEST

FROM SC 13,
TST,5Y2

WHERE OTHER THAN
PANEL SELECTORS
ARE ENCOUNTERED
BC KEY
PT
TST SEL 8-9
TST SEL 13-14
IAI
IA2
SI
S2
LOOP CLOSURE
STP
REMOVES GROUND
STP
OF
O
IA
OPENS LOOP
STP
BO'
FO'
0-.205 s
(B)
A INT
SHOWN ON SC 14
7A/AC3 TO 7A/AC12
5'
.205 s
(B)
A INT
IA3
IA
OF
TST STEP
TST SEL 14-15
TO SC 13,
AN,6Y5

L OPR LP

NOTES:
1. PROVIDES BUSY LINE SELECTION BY USING PROPER IB, IG, FB, FT & FU TO REACH A BUSY LINE.

DRAWING ISSUE 60D
ISSUE 65A

AUTOMATIC TEST CIRCUIT (2) SD-25161-01-E7B
BELL TELEPHONE LABORATORIES INCORPORATED
DWG SIZE 6S

SD-25161-01-E7B

SC17
AUTOMATIC PASS BUSY

FROM SC1 S, 2A/Y3
APB KEY
H
SR
H1
TI
TRUNK IS BUSY
PB
TO SC 31 PB 15E3
TII
TI FAILS TO RELEASE BECAUSE TRUNK IS BUSY
PB REG
CA1
FROM SC 31 CA2, 15C12
CA2
TII
CA3
H STEP
H SEL NEXT
CONN SW HOLD
H
PB
PB REG
Hi
CA1
CA2
CA3
H STEP
H SEL NEXT
TO SC1 H, 2A/Y5
START BUSY TEST OF NEXT TRUNK

SC18

FROM SC13 TST, 6Y29
SP2
REP 2 KEY
RP
W
FROM SC19 TST, 7A/AC16
TST SEL 18-19
TG1
SP2
A3
AV1
Z
STP
SP3
TST STEP
TST SEL 19-20
RP7
TG1
CA4
A3
STP
C
TBL
RESTORING TA SELECTOR
C1
C2
TA SEL NOR-I
RESTORING TST SELECTOR
RP8
TST SEL NOR-I
CA4
C
TST STEP
C1
TST SEL 1-2
C2
TG1
A3
STP
TST STEP
TST SEL 2-3
RP1
S1
S2
0-.205 SEC
(B) B INT
RP2
0-.295 SEC
(B) B INT
RP3
.205 SEC
(B) B INT
RP4
LOOP OPENED TO TEST (A) RELEASE
.295 SEC
(B) B INT
RP5, U3 OR RP5, AB3

REPEAT 2 TO CHECK RELEASE OF INCOMING (A) RELAY
SECOND TEST RELEASE TIME OF INCOMING MEASURER, ZX OPTION
B, K39
RP5
A4 .295 SEC
SP1
(B) B INT
9
OPERATING FROM INT
7'
RPX
RP6
LOOP CLOSED
STP
SHOWN ON SC13 5E22-5E34
.295 SEC
(B) B INT
RPY
TST SEL 3-4
SHOWN ON SC13 5E36-6T26
RP1
RP2, RP3, RP4 RP5, RPX, RPY
.205 SEC
(B) B INT
6
TST SEL 17-18
SP2
SHOWN ON SC14 7L9-7L32
W
5' (IF THIS POINT IS REACHED CKT BLOCKS)
BK
TST SEL 18-19
SP2
AV1
Z
SP3
RP6
TST SEL 19-20
CT REG
CA1
CA2
TO SC 6, CT, 3A/Q7 OR SC 7, CT, 3B/H7
TI1
TR
CA3
RP7
C
RP
H STEP
C1
RP6
H SEL NEXT
C2
H SEL
TST RESTORING TO NORMAL
H1
RP8
CT REG
CA1
CA2
H STEP
H SEL NEXT
CONN SW HOLD1
H
SR
H1
START BUSY TEST BY GROUNDED TO SC 1 TI, 2A/Y12

SECOND TEST RELEASE TIME OF INCOMING NOT MEASURED YF OPTION (MFR DISC.)
B, K39
RP5
A4 .205 SEC
SPI
(B) B INT
6
5'
LOOP CLOSED FOR 1B SELECTION
RP6
STP
SHOWN ON SC13 5E22-5E34
TST SEL 3-4
RP1
RP2, RP3, RP4, RP5

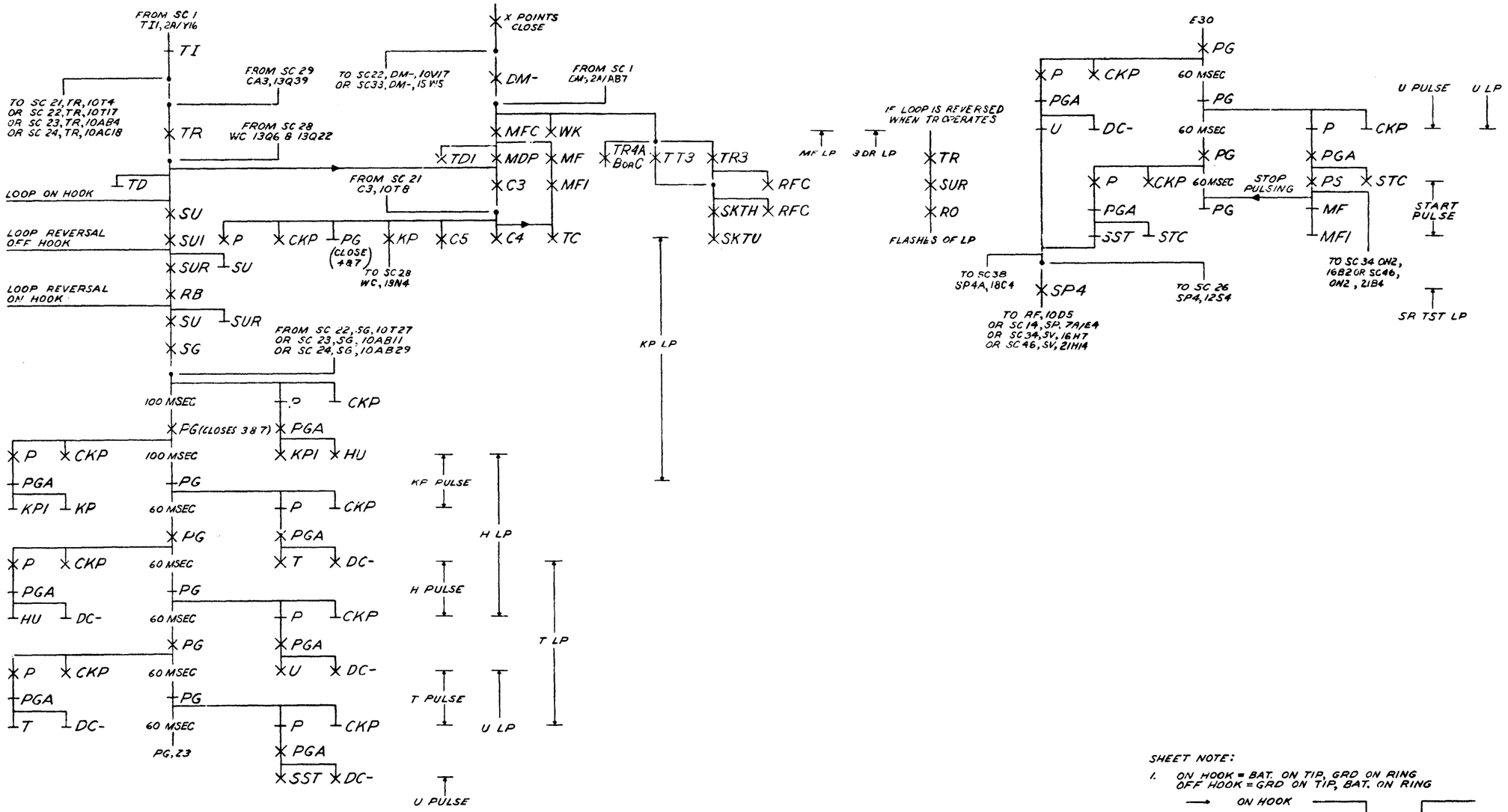
DRAWING ISSUE
36D
41D
52D
58D
60D
61D
ISSUE 65A

AUTOMATIC TEST CIRCUIT
SD-25161-01-E8
BELL TELEPHONE LABORATORIES INCORPORATED
SIZE 6S
2

SD-25161-01-E8

PART OF SC 19

MF PULSING - WINK START - THREE DIGIT PULSING - SIMPLEX RERING
SYNCHRONOUS TEST LINE WINK START



SHEET NOTE:

1. ON HOOK = BAT. ON TIP, GRD ON RING
   OFF HOOK = GRD ON TIP, BAT. ON RING

→ ON HOOK

→ OFF HOOK

DRAWING ISSUE

36D	
41D	
45D	
47D	
52D	
58D	
61D	

ISSUE 65A

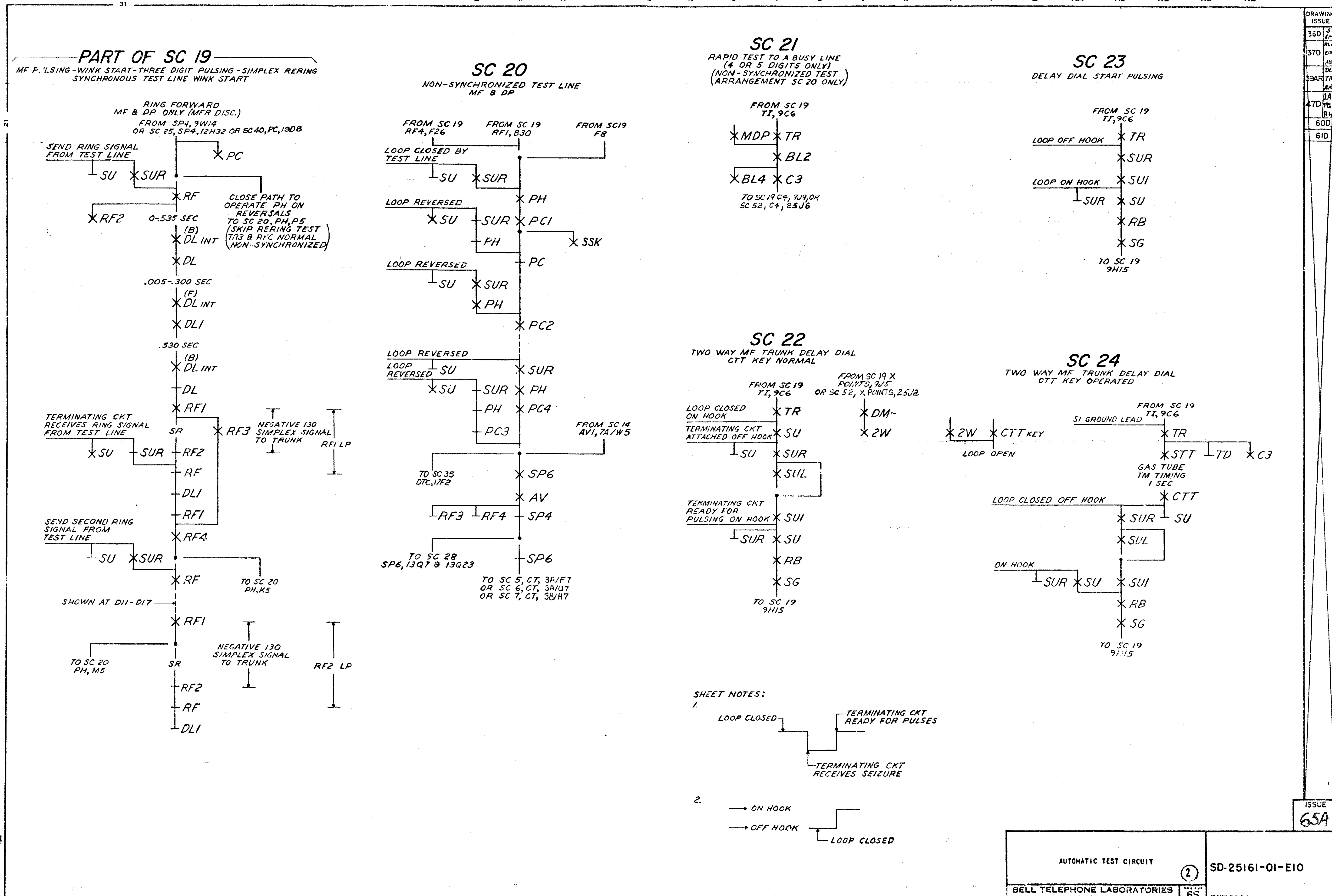
AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-E9

BELL TELEPHONE LABORATORIES INCORPORATED

FORM 6S

63-10-1915-SD


PART OF SC 19
MF PULSING-WINK START-THREE DIGIT PULSING-SIMPLEX RERING SYNCHRONOUS TEST LINE WINK START
SC 20
NON-SYNCHRONIZED TEST LINE MF & DP
SC 21
RAPID TEST TO A BUSY LINE (4 OR 5 DIGITS ONLY) (NON-SYNCHRONIZED TEST ARRANGEMENT SC 20 ONLY)
SC 23
DELAY DIAL START PULSING
SC 22
TWO WAY MF TRUNK DELAY DIAL CTT KEY NORMAL
SC 24
TWO WAY MF TRUNK DELAY DIAL CTT KEY OPERATED
SHEET NOTES:
1.
LOOP CLOSED
TERMINATING CKT READY FOR PULSES
TERMINATING CKT RECEIVES SEIZURE
2.
ON HOOK
OFF HOOK
LOOP CLOSED

AUTOMATIC TEST CIRCUIT

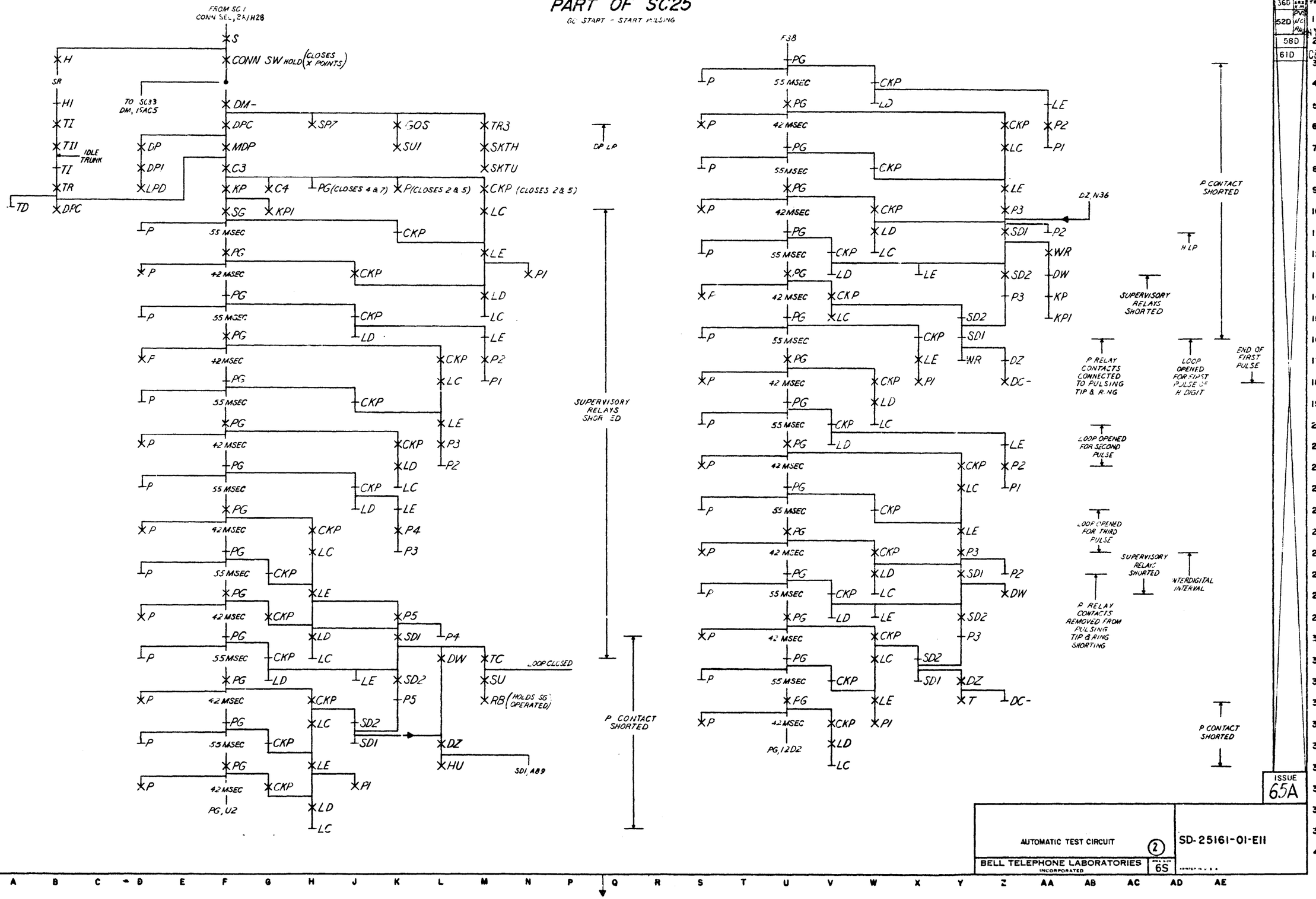
SD-25161-01-E10

BELL TELEPHONE LABORATORIES INCORPORATED

ISSUE 65A

PART OF SC25

GL START - START PULSING



DRAWING ISSUE
36D
52D
58D
61D

ISSUE 65A

AUTOMATIC TEST CIRCUIT (2)

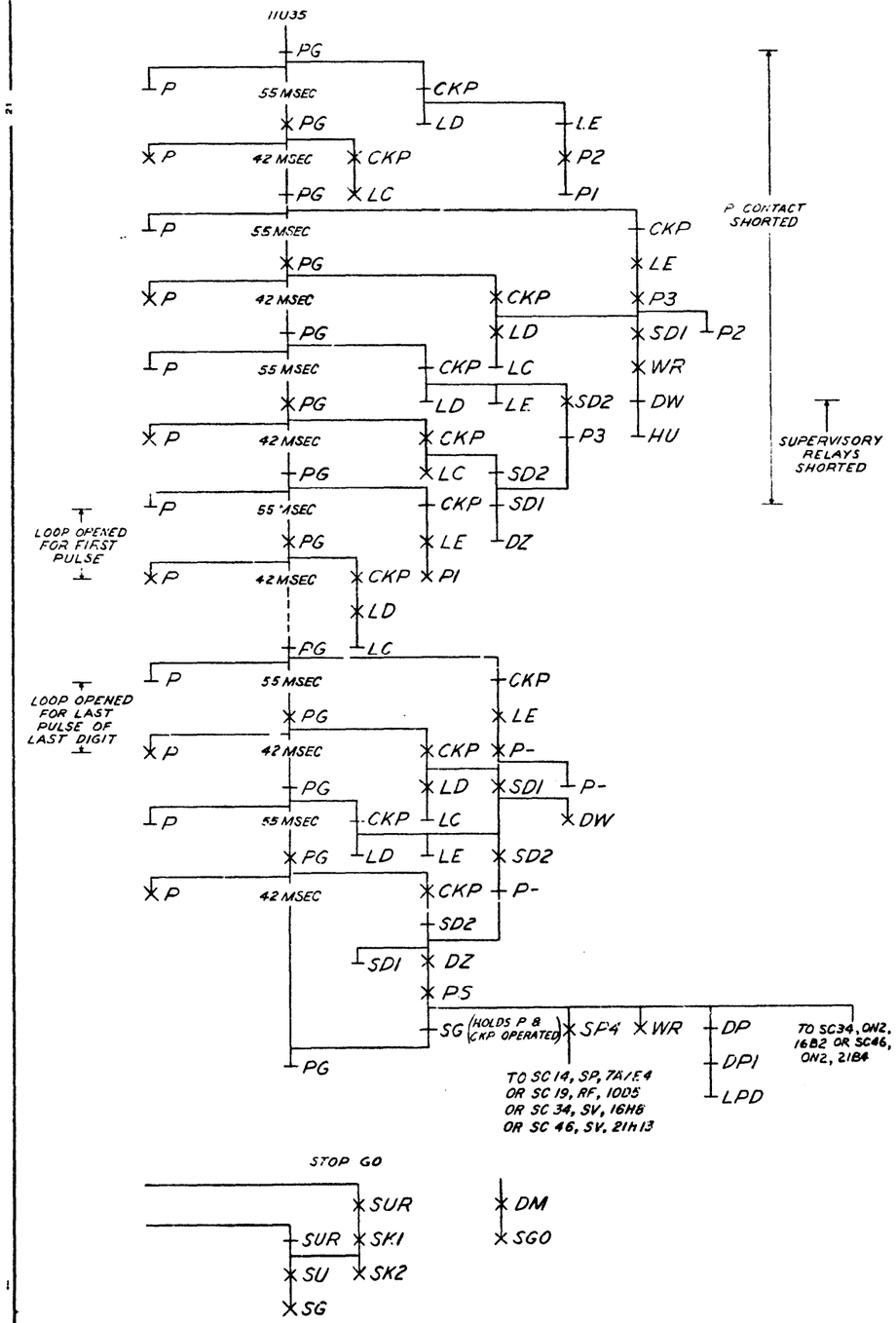
BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-E11

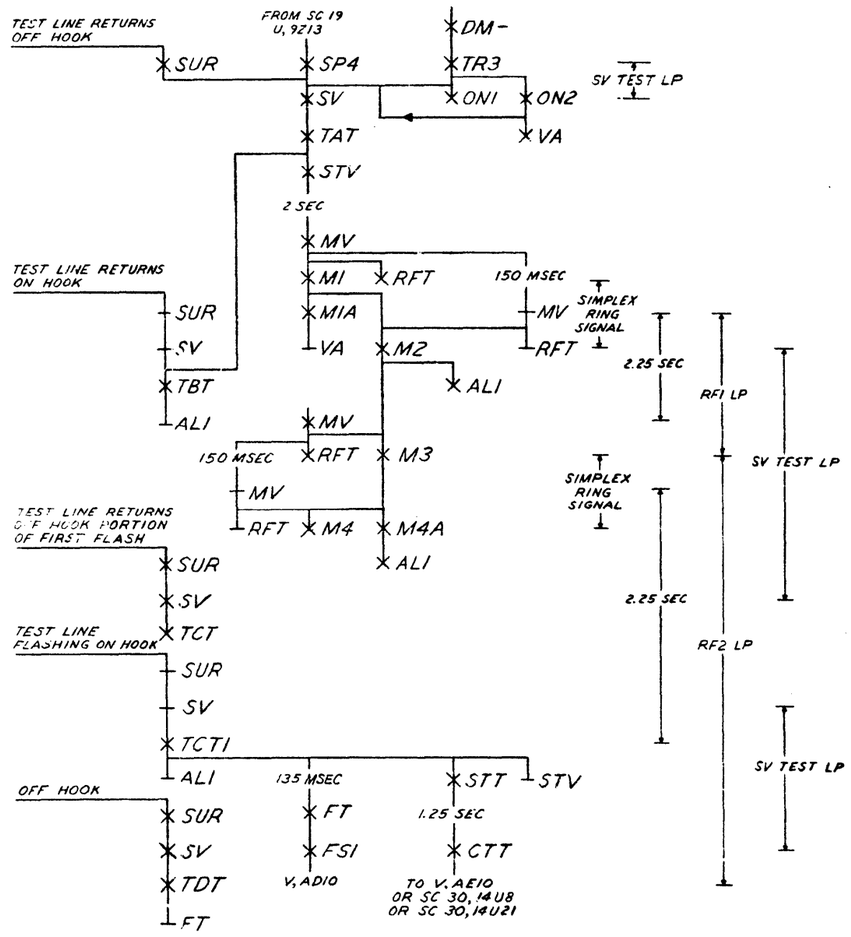
SIZE 6S

SD-25161-01-E11

PART OF SC 25
GO START-START PULSING



SC 26
RING FORWARD
SUPERVISORY TEST LINE TEST
MF & DP

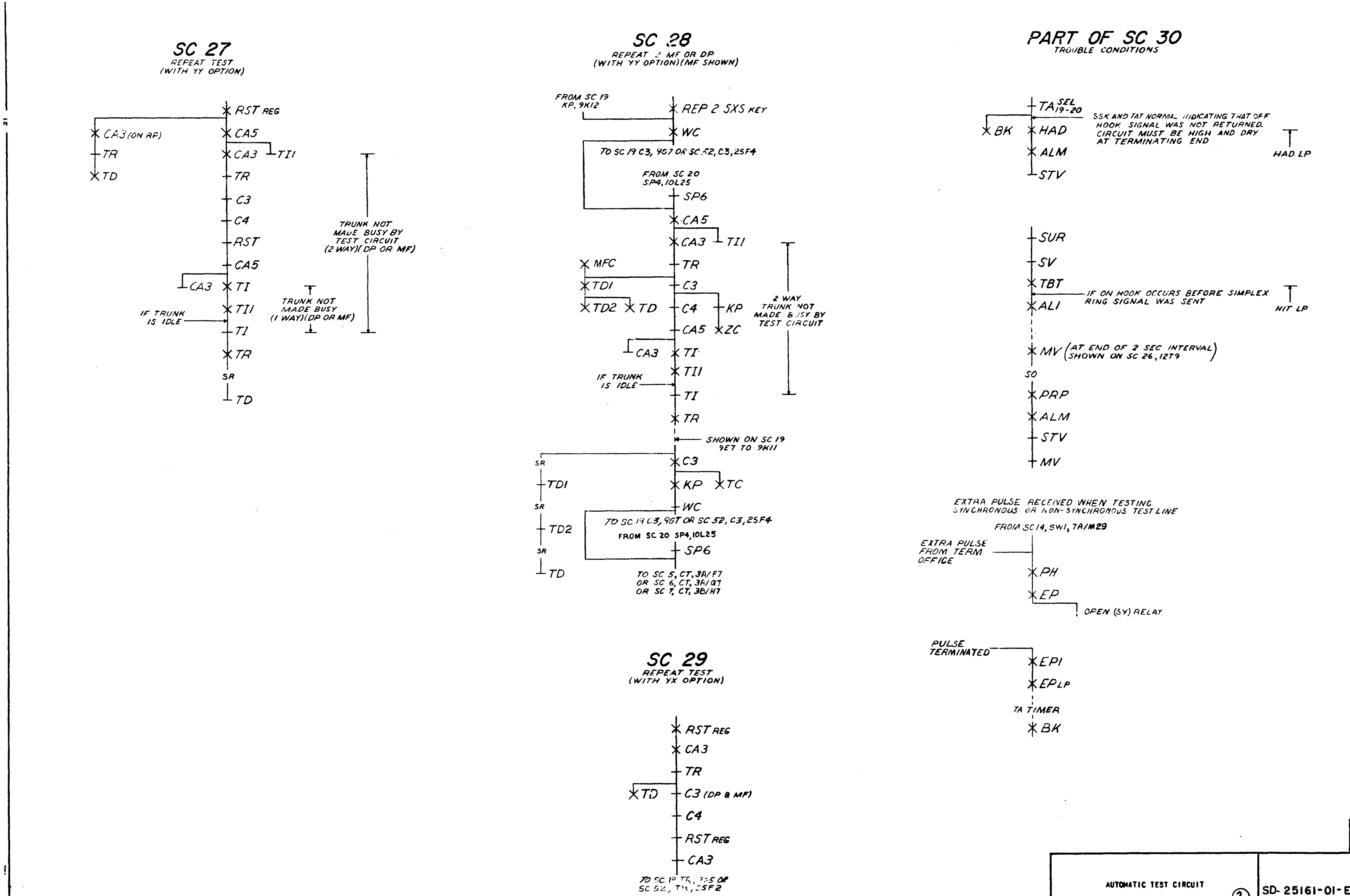


DRAWING ISSUE
36D
37D
41D
43AC
46AC
47D
52D
57A
61D

ISSUE 65A

AUTOMATIC TEST CIRCUIT
SD-25161-01-E12
BELL TELEPHONE LABORATORIES INCORPORATED
2
6S

SD-25161-01-E12



SC 27
REPEAT TEST (WITH YY OPTION)
RST REG
CA5
CA3 (ON RF)
TR
TD
CA3
TI1
TR
C3
C4
RST
CA5
CA3
TI
TI1
IF TRUNK IS IDLE
TI
TR
SR
TD
TRUNK NOT MADE BUSY BY TEST CIRCUIT (2 WAY)(DP OR MF)
TRUNK NOT MADE BUSY (1 WAY)(DP OR MF)
SC 28
REPEAT 2 MF OR DP (WITH YY OPTION)(MF SHOWN)
FROM SC 19 KP, 9K12
REP 2 SXS KEY
WC
TO SC 19 C3, 9G7 OR SC 52, C3, 25F4
FROM SC 20 SP4, 10L25
SP6
CA5
CA3
TI1
MFC
TR
TD1
C3
TD2
TD
C4
KP
CA5
ZC
2 WAY TRUNK NOT MADE BUSY BY TEST CIRCUIT
CA3
TI
TI1
IF TRUNK IS IDLE
TI
TR
SHOWN ON SC 19 9E7 TO 9K11
SR
C3
TD1
KP
TC
SR
WC
TD2
TO SC 19 C3, 9G7 OR SC 52, C3, 25F4
FROM SC 20 SP4, 10L25
SR
SP6
TD
TO SC 5, CT, 3A/F7 OR SC 6, CT, 3A/Q7 OR SC 7, CT, 3B/H7
SC 29
REPEAT TEST (WITH YX OPTION)
RST REG
CA3
TR
TD
C3 (DP & MF)
C4
RST REG
CA3
PART OF SC 30
TROUBLE CONDITIONS
TA SEL 19-20
BK
HAD
ALM
STV
SSK AND TAT NORMAL INDICATING THAT OFF HOOK SIGNAL WAS NOT RETURNED. CIRCUIT MUST BE HIGH AND DRY AT TERMINATING END
HAD LP
SUR
SV
TBT
ALI
IF ON HOOK OCCURS BEFORE SIMPLEX RING SIGNAL WAS SENT
HIT LP
MV (AT END OF 2 SEC INTERVAL SHOWN ON SC 26, 12T9)
SO
PRP
ALM
STV
MV
EXTRA PULSE RECEIVED WHEN TESTING SYNCHRONOUS OR NON-SYNCHRONOUS TEST LINE
FROM SC 14, SW1, 7A/M29
EXTRA PULSE FROM TERM. OFFICE
PH
EP
OPEN (SY) RELAY
PULSE TERMINATED
EP1
EP LP
TA TIMER
BK

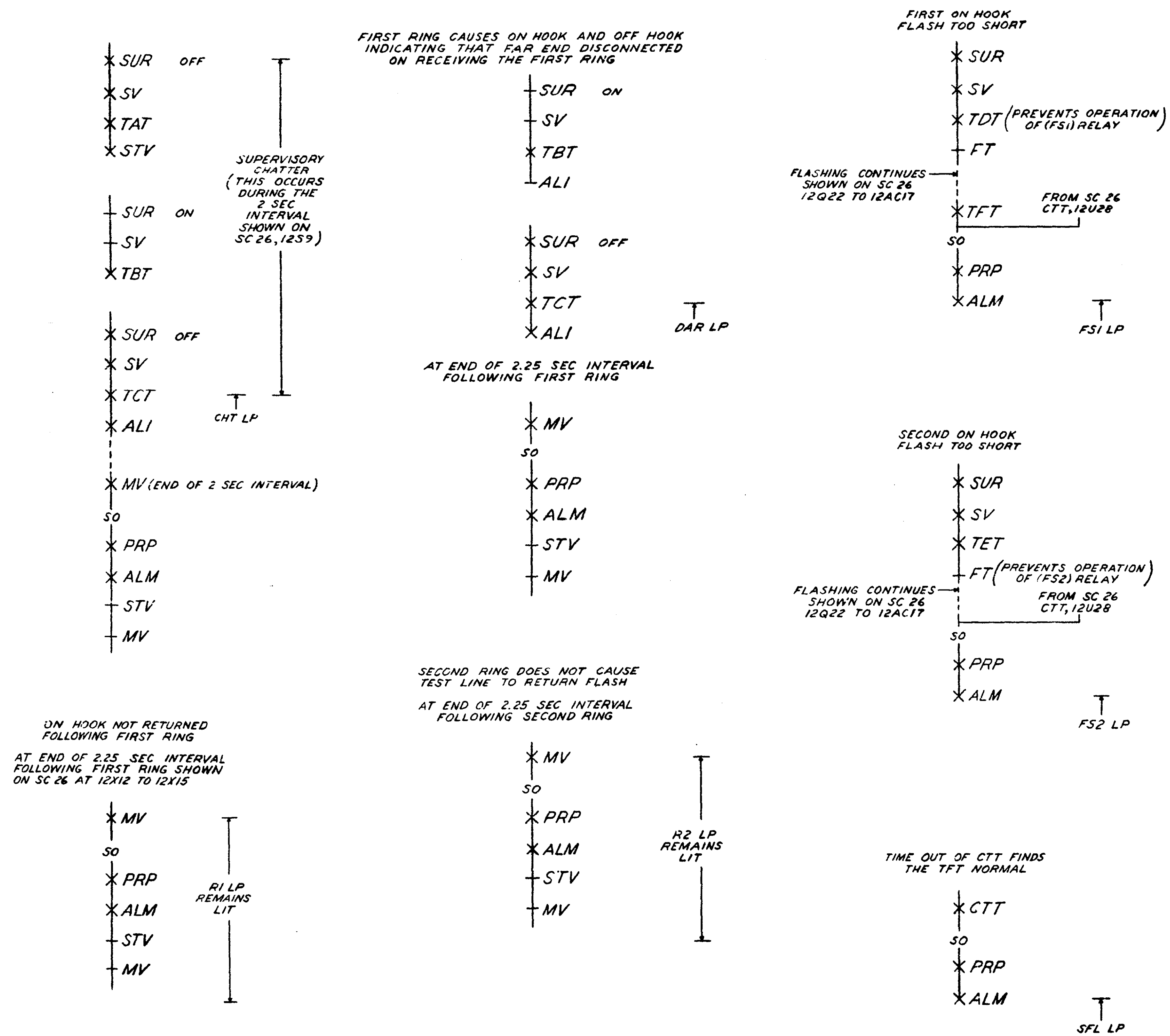
ISSUE 65A

AUTOMATIC TEST CIRCUIT ②

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-25161-01-E13

PART OF SC 30
TROUBLE CONDITIONS



SUR OFF
SV
TAT
STV
SUR ON
SV
TBT
SUR OFF
SV
TCT
ALI
MV (END OF 2 SEC INTERVAL)
SO
PRP
ALM
STV
MV
SUPERVISORY CHATTER (THIS OCCURS DURING THE 2 SEC INTERVAL SHOWN ON SC 26, 12S9)
CHT LP
ON HOOK NOT RETURNED FOLLOWING FIRST RING
AT END OF 2.25 SEC INTERVAL FOLLOWING FIRST RING SHOWN ON SC 26 AT 12X12 TO 12X15
MV
SO
PRP
ALM
STV
MV
R1 LP REMAINS LIT
FIRST RING CAUSES ON HOOK AND OFF HOOK INDICATING THAT FAR END DISCONNECTED ON RECEIVING THE FIRST RING
SUR ON
SV
TBT
ALI
SUR OFF
SV
TCT
ALI
DAR LP
AT END OF 2.25 SEC INTERVAL FOLLOWING FIRST RING
MV
SO
PRP
ALM
STV
MV
SECOND RING DOES NOT CAUSE TEST LINE TO RETURN FLASH
AT END OF 2.25 SEC INTERVAL FOLLOWING SECOND RING
MV
SO
PRP
ALM
STV
MV
R2 LP REMAINS LIT
FIRST ON HOOK FLASH TOO SHORT
SUR
SV
TDT (PREVENTS OPERATION OF (FS1) RELAY)
FT
FLASHING CONTINUES SHOWN ON SC 26 12Q22 TO 12AC17
TFT
FROM SC 26 CTT, 12U28
SO
PRP
ALM
FS1 LP
SECOND ON HOOK FLASH TOO SHORT
SUR
SV
TET
FT (PREVENTS OPERATION OF (FS2) RELAY)
FLASHING CONTINUES SHOWN ON SC 26 12Q22 TO 12AC17
FROM SC 26 CTT, 12U28
SO
PRP
ALM
FS2 LP
TIME OUT OF CTT FINDS THE TFT NORMAL
CTT
SO
PRP
ALM
SFL LP

DRAWING ISSUE 36D 39AR

39

CROSSBAR SYSTEMS
NO. 1 OR TANDEM OFFICE AUTOMATIC TEST CIRCUIT
(2)
SD-25161-01-E14
BELL TELEPHONE LABORATORIES

SD-25161-01-E14

SC31

TEST CKT ENCOUNTERS BUSY TRUNK WITH TTY IN USE (TM2 - TX:4 KEY NORMAL)

FROM SC17 TI, BE10

PB

RELEASE OF FB AFTER (BY) OPERATES HAS NO EFFECT (BY) IS LOCKED OVER BTT

BY (IN TTY) (STOPS TEST CKT ADVANCE IF TRUNK BECOMES IDLE)

TTY CARRIAGE SHIFT, LINE FEED, FIGURE SHIFT, TRUNK NUMBER, SPACE, LETTER SHIFT, BUSY INDICATION

PB REG

CA1

CA2

CA3

TO SC17 H, BA12

BY (IN TTY)

PTR KEY

PTR (IN TTY PREPARES TTY TO PRINT ON SIGNAL FROM TEST CKT)

PR (IN TEST CKT)

SC32

PRINTING TROUBLE CONDITIONS

PRP, HAD, PAS, IF, OR TBY

ALM

TB (TTY)

TTY CARRIAGE SHIFT LINE FEED, FIGURE SHIFT TRUNK NUMBER SPACE LETTER SHIFT TROUBLE INDICATION

(IF) OPERATED — GROUND ON (A) LEAD

CFB KEY OPERATED

PAS OPERATED — CFB KEY NORMAL

OTHER TROUBLE CONDITIONS

TB1 (TTY)

BY1

ALARM AND TA LP

BK

CA

CA1

TO SC 8 CA2, 4G6

AR-AAR KEY NORMAL PRP, PAS, OR HAD AR OR AAR OPERATED PAS ONLY

PTR KEY

PTR (IN TTY PREPARES TTY TO PRINT ON SIGNAL FROM TEST CKT)

PR (IN TEST CKT)

PRP OR HAD, AR OR AAR OPERATED

GRD ON (A) LEAD

R1

FFT REG

CA3

TR

C3

C4

ON1

PRP OR HAD

R2

FFT REG

CA3

TR

C3

C4

RETEST

SC33

CONTINUITY AND POLARITY TEST OF E AND 1A TRUNKS

CP KEY

CP3

FROM SC19 X POINTS 9J5 OR SC5_ X POINTS 25J2

DM-

PEM

WINK START

GO START

WK

DPL

GOS

DELAY DIAL

ON HOOK

TRUNK GIVES ON-HOOK

TRUNK GIVES OFF-HOOK

TEST FRAME OUTPULSES TEST LINE CODE

SU

SUI

SUR

SUI

PS

PSA

DISTANT SENDER ATTACHED

DISTANT END READY FOR PULSING ON HOOK

TEST LINE GIVES OFF-HOOK

SUR

SU

RB

SU

CT REG

SU

RB

CT REG

SUR

TO SC5, CA1, 3A/F8
OR SC6, CA1, 3A/Q8
OR SC7, CA1, 3B/H8
OR SC9, RST, 4P3
OR SC11, CA1, 4E24

DRAWING ISSUE

36D

47D

48A

52D

56A

57A FLK

58D

ISSUE 65A

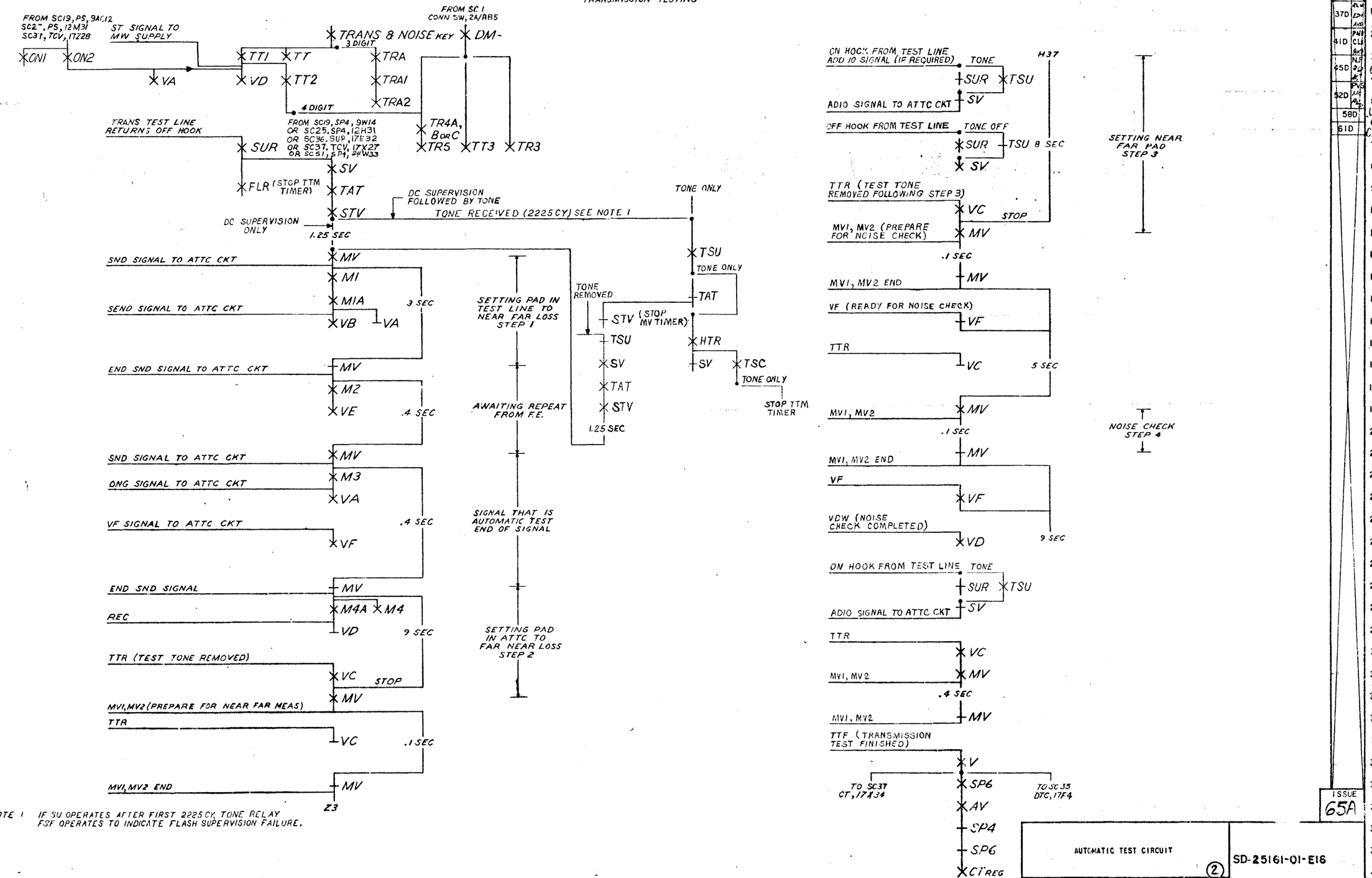
AUTOMATIC TEST CIRCUIT (2)

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-E15

SD-25161-01-E13

SC 34
TRANSMISSION TESTING



NOTE 1 IF SU OPERATES AFTER FIRST 2225 CY TONE RELAY FSF OPERATES TO INDICATE FLASH SUPERVISION FAILURE.

DRAWING ISSUE

36D	YEB
37D	
41D	CB
45D	CB
52D	
58D	
61D	

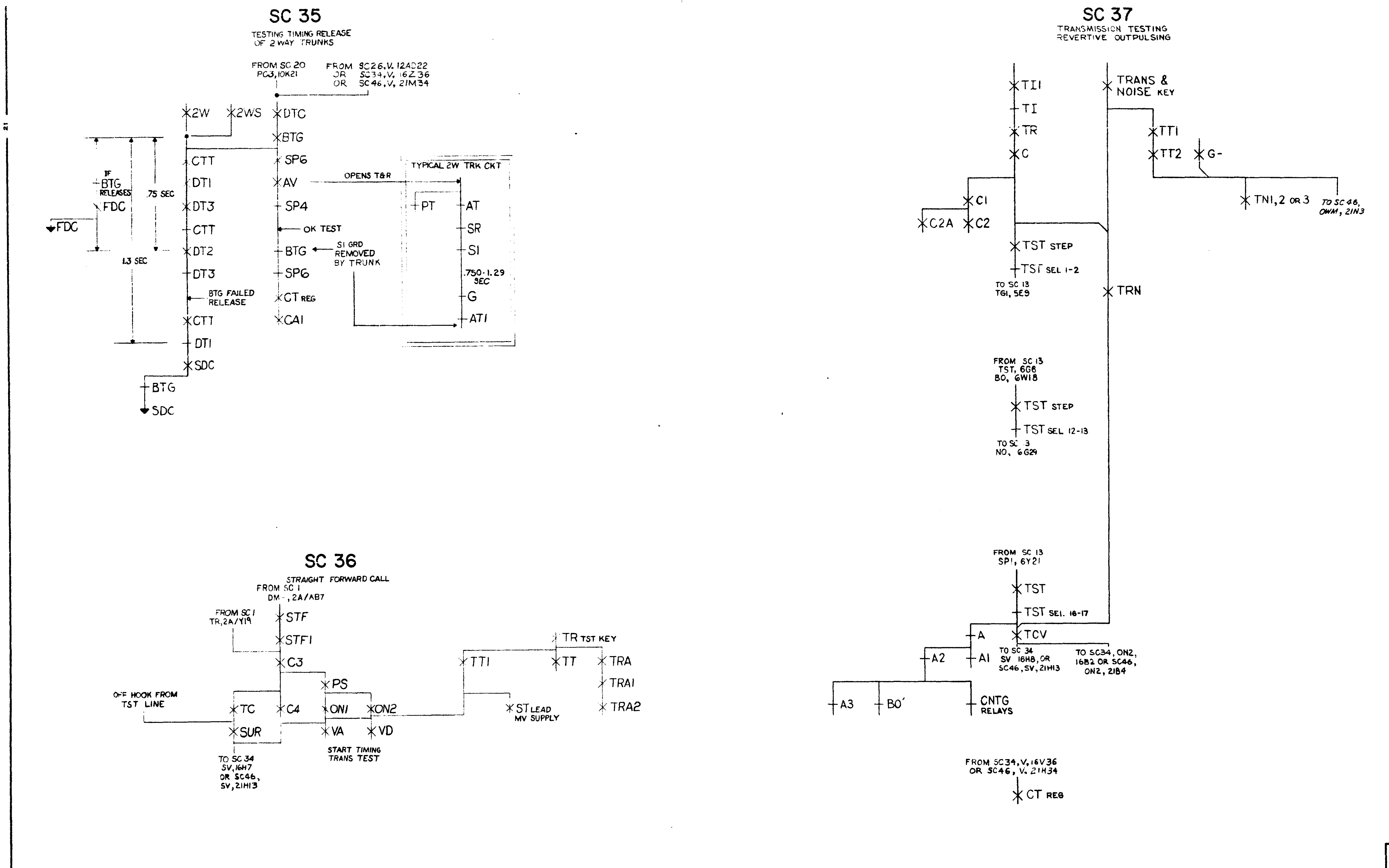
ISSUE 65A

AUTOMATIC TEST CIRCUIT

SD-25161-01-E16

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-F16



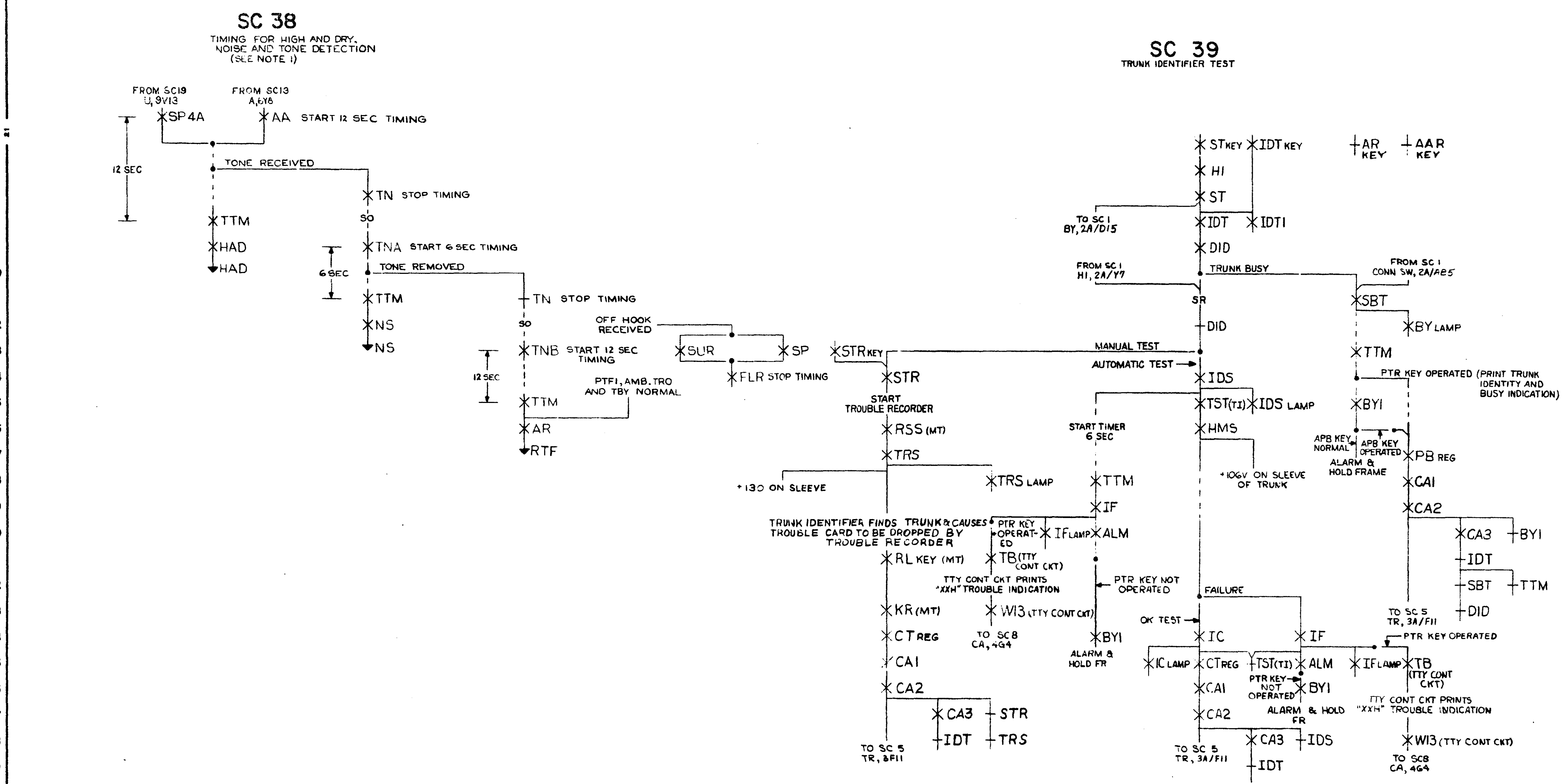
SC 35
TESTING TIMING RELEASE OF 2 WAY TRUNKS
FROM SC 20 PC3, 10K21
FROM SC26,V, 12AD22 OR SC34,V, 16Z36 OR SC46,V, 21M34
2W
2WS
DTC
BTG
SP6
AV
SP4
OK TEST
BTG
SP6
CT REG
CA1
CTT
DT1
DT3
CTT
DT2
DT3
BTG FAILED RELEASE
CTT
DT1
SDC
BTG
SDC
IF BTG RELEASES
FDC
FDC
.75 SEC
1.3 SEC
OPENS T&R
S1 GRD REMOVED BY TRUNK
TYPICAL 2W TRK CKT
PT
AT
SR
S1
.750-1.29 SEC
G
AT1
SC 36
STRAIGHT FORWARD CALL
FROM SC 1 DM-, 2A/AB7
FROM SC 1 TR, 2A/Y19
STF
STF1
C3
PS
C4
ON1
ON2
VA
VD
TC
SUR
OFF HOOK FROM TST LINE
TO SC 34 SV, 16H7 OR SC46, SV, 21H13
START TIMING TRANS TEST
TT1
TR TST KEY
TT
TRA
TRA1
TRA2
ST LEAD MV SUPPLY
SC 37
TRANSMISSION TESTING REVERTIVE OUTPULSING
TI1
TI
TR
C
C1
C2A
C2
TST STEP
TST SEL 1-2
TO SC 13 TG1, 5E9
TRANS & NOISE KEY
TT1
TT2
G-
TN1, 2 OR 3
TO SC 46, OWM, 21N3
TRN
FROM SC 13 TST, 6G6 BO, 6W18
TST STEP
TST SEL 12-13
TO SC 3 NO, 6G29
FROM SC 13 SP1, 6Y21
TST
TST SEL. 16-17
A
TCV
A2
A1
TO SC 34 SV 16H8, OR SC46, SV, 21H13
TO SC34, ON2, 16B2 OR SC46, ON2, 21B4
A3
BO'
CNTG RELAYS
FROM SC34, V, 16V36 OR SC46, V, 21H34
CT REG

ISSUE 65A

AUTOMATIC TEST CIRCUIT (2) SD-25161-01-E17

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-25161-01-E17


SC 38
TIMING FOR HIGH AND DRY, NOISE AND TONE DETECTION (SEE NOTE 1)
FROM SC19 U, 9V13
SP4A
FROM SC13 A, 6Y8
AA START 12 SEC TIMING
12 SEC
TONE RECEIVED
TN STOP TIMING
SO
TTM
HAD
HAD
TNA START 6 SEC TIMING
6 SEC
TONE REMOVED
TTM
NS
NS
TN STOP TIMING
SO
OFF HOOK RECEIVED
SUR
SP
12 SEC
TNB START 12 SEC TIMING
PTF1, AMB.TRO AND TBY NORMAL
FLR STOP TIMING
TTM
AR
RTF
SC 39
TRUNK IDENTIFIER TEST
STKEY
IDT KEY
AR KEY
AAR KEY
HI
ST
TO SC 1 BY, 2A/D15
IDT
IDT1
DID
FROM SC 1 HI, 2A/Y7
TRUNK BUSY
FROM SC 1 CONN SW, 2A/AE5
SR
SBT
DID
BY LAMP
STR KEY
MANUAL TEST
AUTOMATIC TEST
TTM
STR
IDS
PTR KEY OPERATED (PRINT TRUNK IDENTITY AND BUSY INDICATION)
START TROUBLE RECORDER
TST(TI)
IDS LAMP
BYI
RSS (MT)
START TIMER 6 SEC
HMS
APB KEY NORMAL
APB KEY OPERATED
PB REG
TRS
ALARM & HOLD FRAME
+130 ON SLEEVE
TRS LAMP
TTM
+106V ON SLEEVE OF TRUNK
CA1
IF
CA2
TRUNK IDENTIFIER FINDS TRUNK & CAUSES TROUBLE CARD TO BE DROPPED BY TROUBLE RECORDER
PTR KEY OPERATED
IF LAMP
ALM
CA3
BYI
RL KEY (MT)
TB (TTY CONT CKT)
IDT
TTY CONT CKT PRINTS "XXH" TROUBLE INDICATION
PTR KEY NOT OPERATED
SBT
TTM
FAILURE
TO SC 5 TR, 3A/F11
DID
KR (MT)
W13 (TTY CONT CKT)
OK TEST
CT REG
TO SC8 CA, 4G4
BYI
IC
IF
PTR KEY OPERATED
ALARM & HOLD FR
CA1
IC LAMP
CT REG
TST(TI)
ALM
IF LAMP
TB (TTY CONT CKT)
CA2
CA1
PTR KEY NOT OPERATED
BYI
CA3
STR
CA2
ALARM & HOLD FR
TTY CONT CKT PRINTS "XXH" TROUBLE INDICATION
IDT
TRS
CA3
IDS
W13 (TTY CONT CKT)
TO SC 5 TR, 3F11
TO SC 5 TR, 3A/F11
IDT
TO SC8 CA, 4G4

SHEET NOTES:
1. AN OFF HOOK RECEIVED DURING ANY TIMING PERIOD WILL OPERATE RELAY FLR TO STOP TIMING FOR THE REMAINDER OF THE TEST CYCLE.

DRAWING ISSUE	
45D	
47D	
52D	
54AR	
55D	
56A	
58D	
60D	
61D	

ISSUE 65A

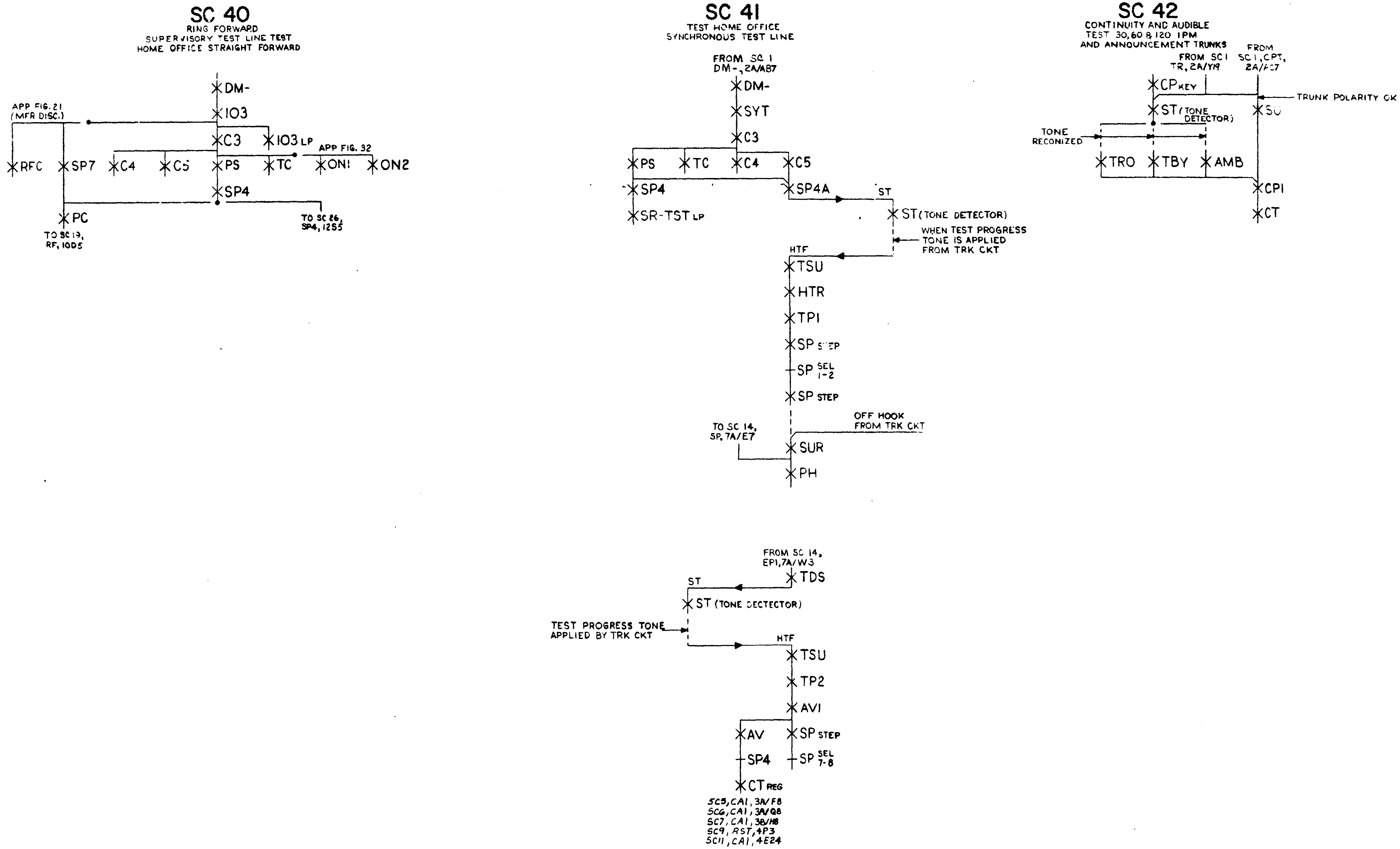
AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-E18

SD-25161-01-E18



SC 40
RING FORWARD
SUPERVISORY TEST LINE TEST
HOME OFFICE STRAIGHT FORWARD
DM-
103
C3
103 LP
APP FIG. 21 (MFR DISC.)
APP FIG. 32
RFC
SP7
C4
C5
PS
TC
ON1
ON2
SP4
PC
TO SC 19, RF, 10D5
TO SC 26, SP4, 12S5
SC 41
TEST HOME OFFICE
SYNCHRONOUS TEST LINE
FROM SC 1 DM-, 2A/AB7
DM-
SYT
C3
PS
TC
C4
C5
SP4
SP4A
SR-TST LP
ST
ST (TONE DETECTOR)
WHEN TEST PROGRESS TONE IS APPLIED FROM TRK CKT
HTF
TSU
HTR
TP1
SP STEP
SP SEL 1-2
SP STEP
OFF HOOK FROM TRK CKT
TO SC 14, SP, 7A/E7
SUR
PH
FROM SC 14, EP1, 7A/W3
TDS
ST
ST (TONE DECTECTOR)
TEST PROGRESS TONE APPLIED BY TRK CKT
HTF
TSU
TP2
AV1
AV
SP STEP
SP4
SP SEL 7-8
CT REG
SC5, CA1, 3A/F8
SC6, CA1, 3A/Q8
SC7, CA1, 3B/H8
SC9, RST, 4P3
SC11, CA1, 4E24
SC 42
CONTINUITY AND AUDIBLE
TEST 30, 60 & 120 IPM
AND ANNOUNCEMENT TRUNKS
FROM SC 1 TR, 2A/Y9
FROM SC 1, CPT, 2A/AC7
CP KEY
ST (TONE DETECTOR)
SU
TRUNK POLARITY OK
TONE RECONIZED
TRO
TBY
AMB
CP1
CT

ISSUE 65A

AUTOMATIC TEST CIRCUIT

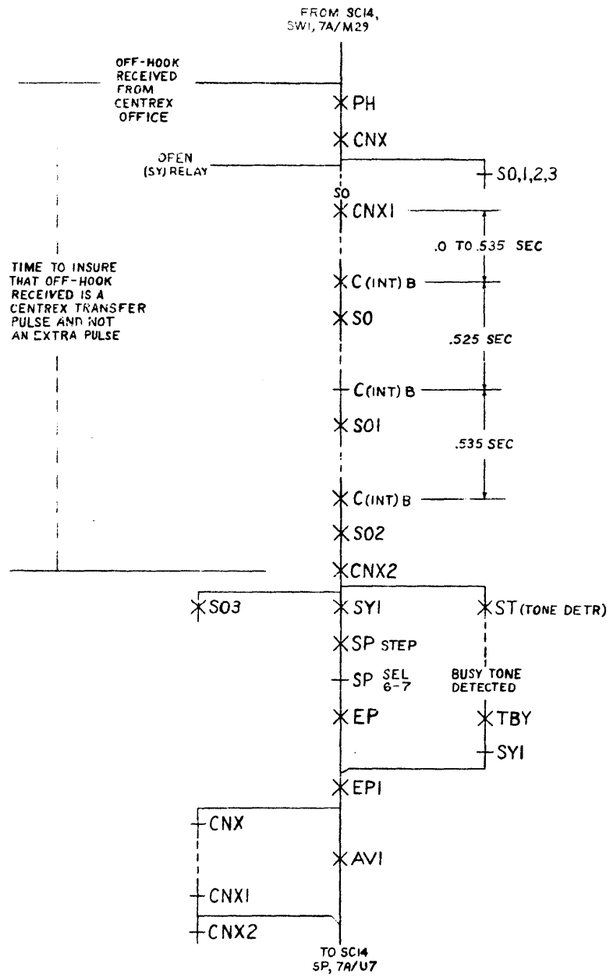
BELL TELEPHONE LABORATORIES INCORPORATED

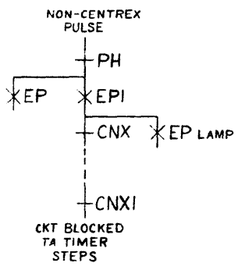
6S

SD-25161-01-E19

SC 43

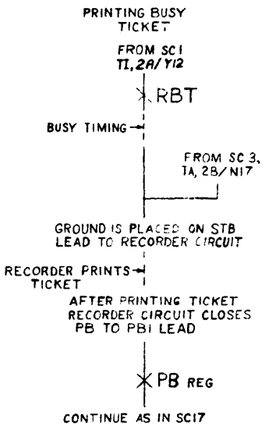
CENTREX TEST LINE

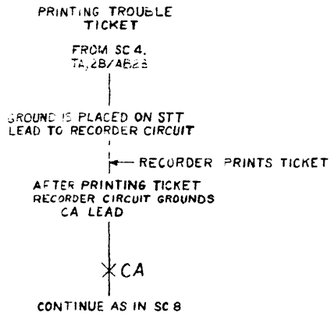




SC 44

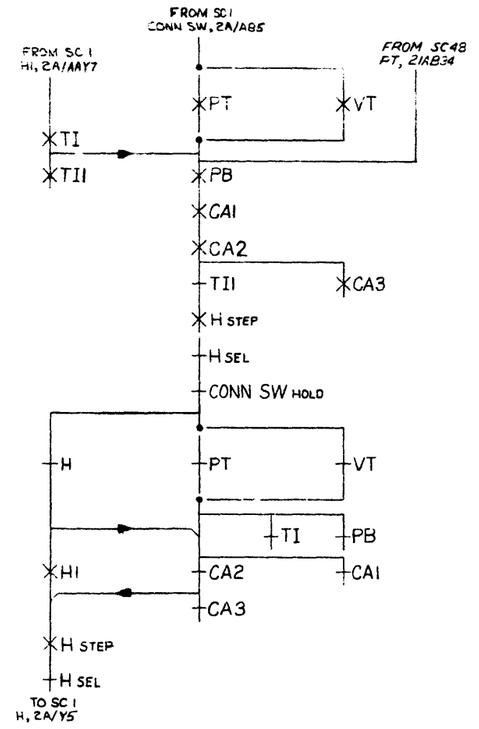
PRINTING BUSY AND TROUBLE TICKETS USING RECORDER CIRCUIT AND TICKETER





SC 45

PASS TEST



DRAWING ISSUE

47D	PJ
52D	EVS
57A	FLK
58D	
60D	
61D	

ISSUE 65A

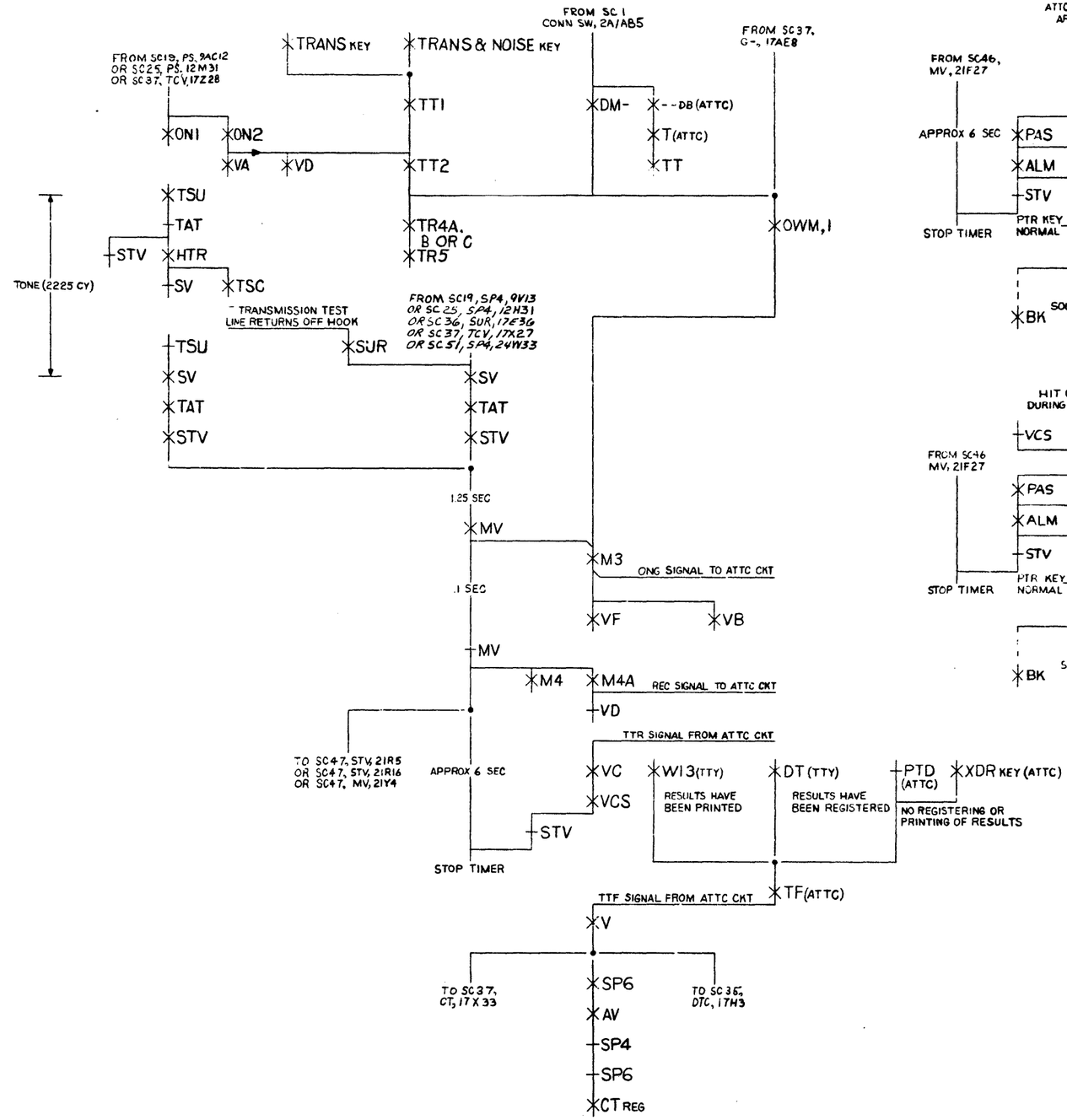
AUTOMATIC TEST CIRCUIT (2) SD-25161-01-E20

BELL TELEPHONE LABORATORIES INCORPORATED — SHEET SIZE 6S

SD-25161-01-E20

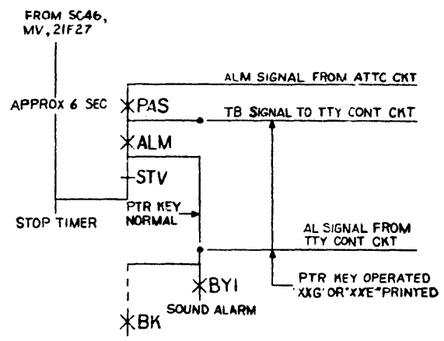
STABILO

SC 46
ONE-WAY TRANSMISSION TEST

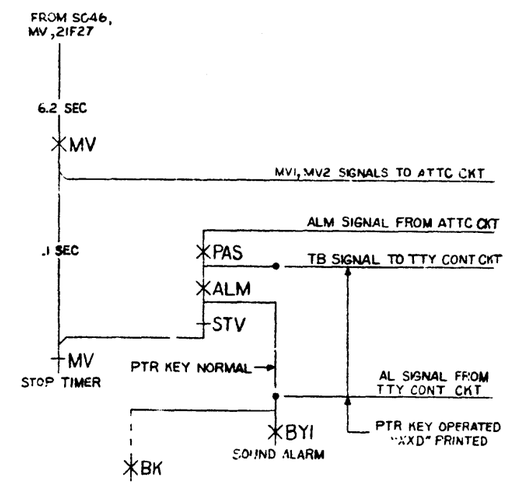


SC 47
ONE-WAY TRANSMISSION TESTING TROUBLE CONDITIONS

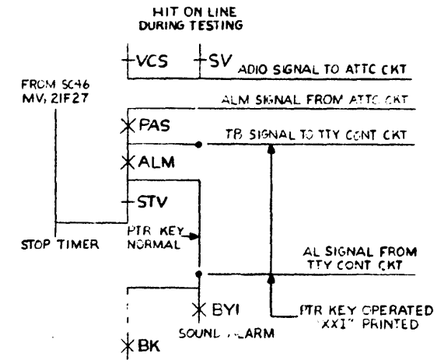
ATTC TEST INCOMPLETE AFTER TWO TRIALS



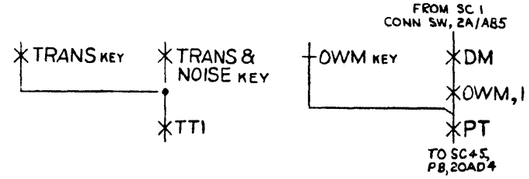
TIME OUT WITH NO SIGNAL RECEIVED FROM ATTC



HIT ON LINE DURING TESTING



SC 48
PASSING A ONE-WAY TRANSMISSION TEST TRUNK DURING TWO-WAY TRANSMISSION TESTS



DRAWING ISSUE
52D
58D
61D

ISSUE 65A

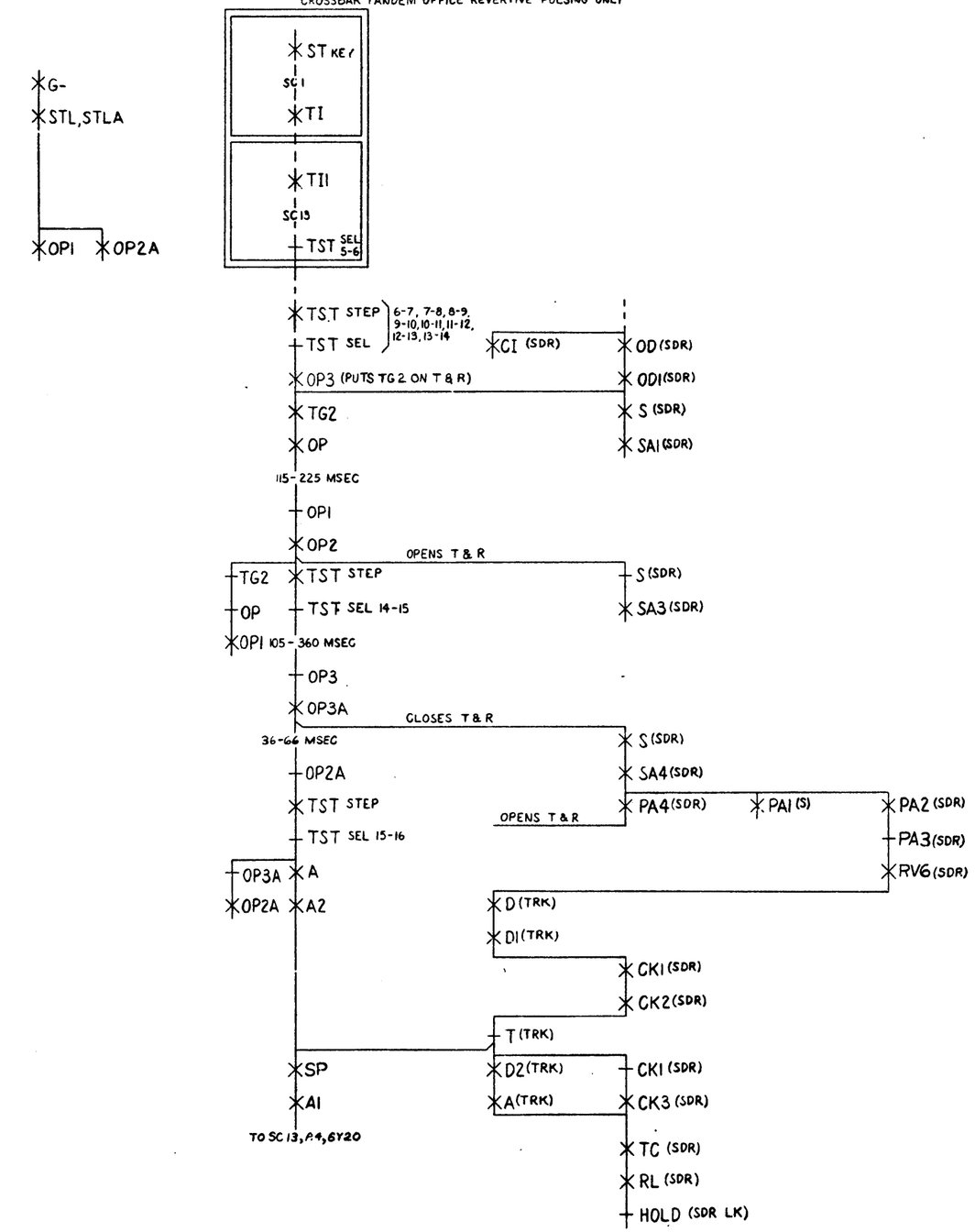
AUTOMATIC TEST CIRCUIT (2) SD-25161-01-E21

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-25161-01-E21

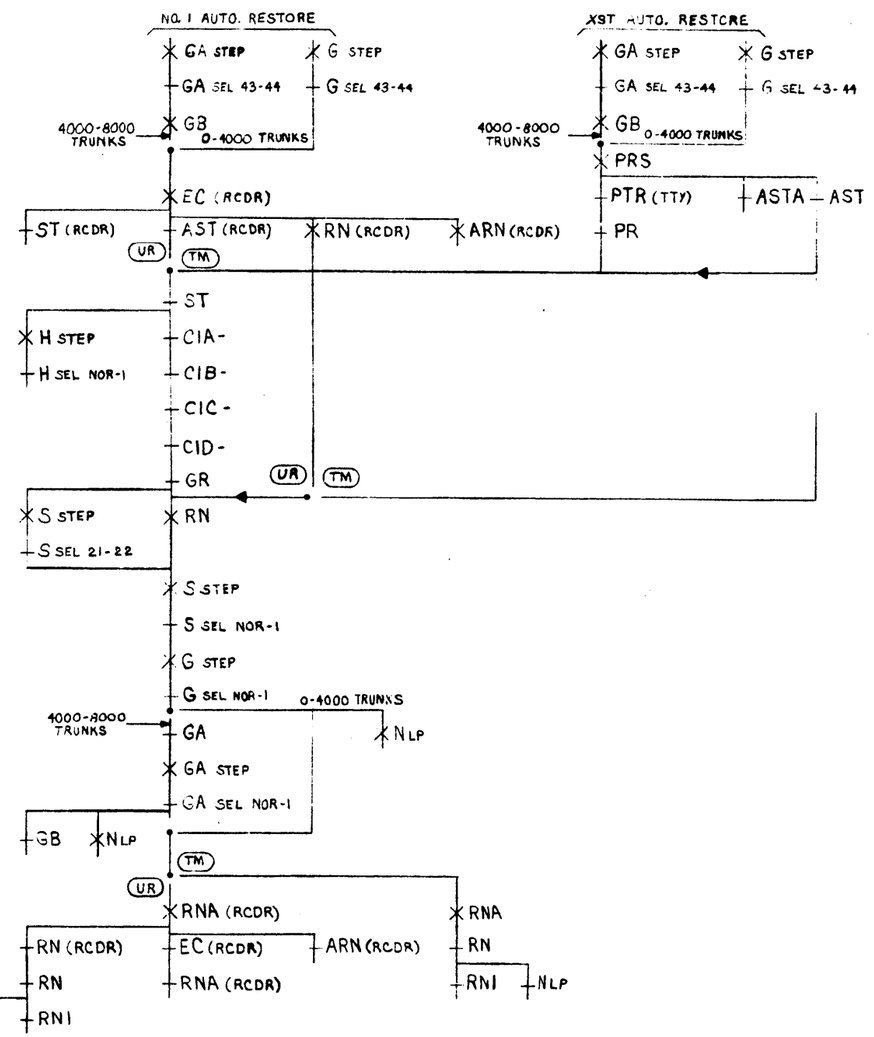
SC 49

TEST TO A SYNCHRONOUS TEST LINE IN A CROSSBAR TANDEM OFFICE REVERTIVE PULSING ONLY



SC 50

RESTORE TO NORMAL AUTOMATICALLY



DRAWING ISSUE

53D	NC #6 Adp
58D	
61D	

61

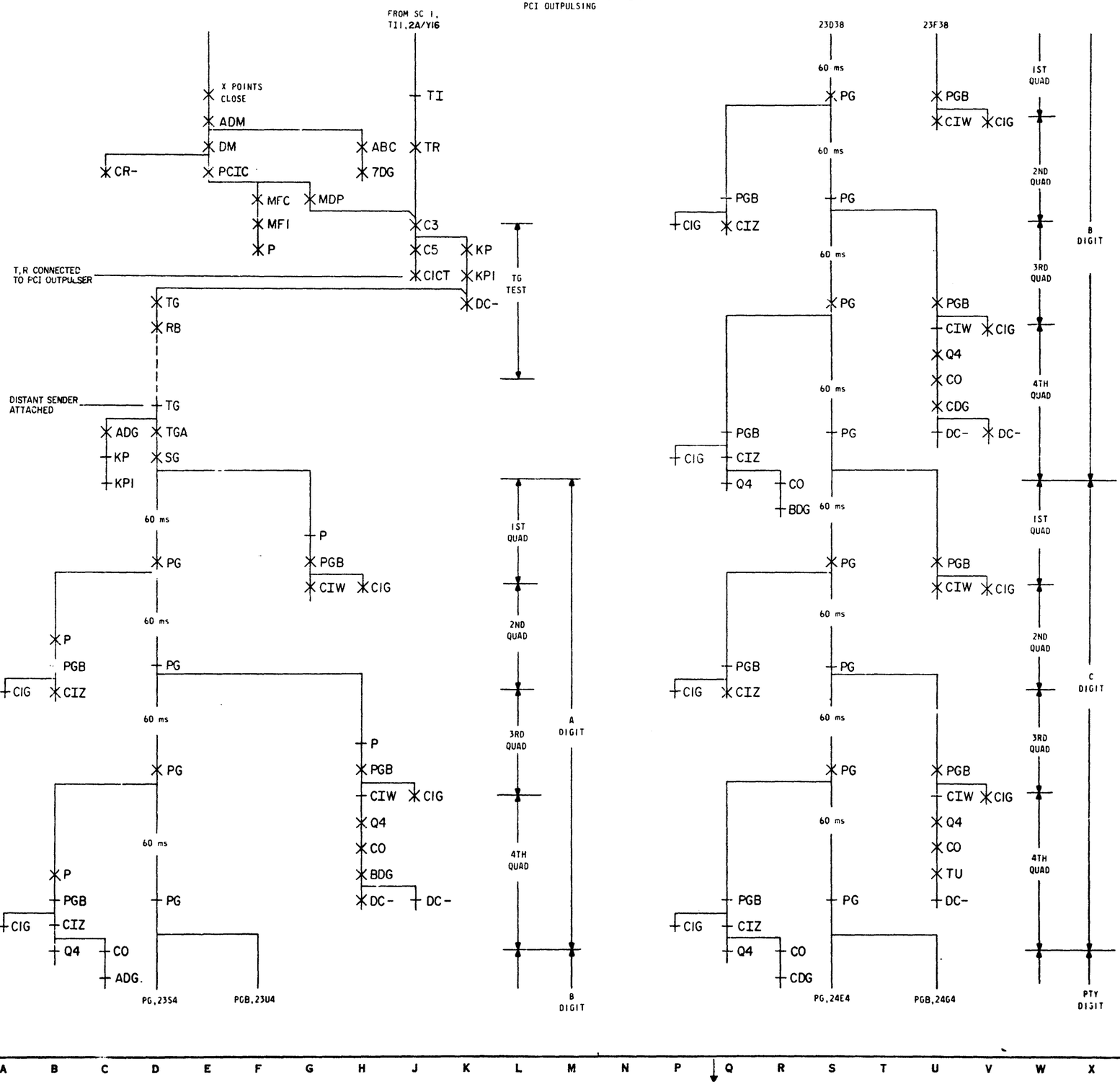
AUTOMATIC TEST CIRCUIT (2) SD-25161-01-E22

BELL TELEPHONE LABORATORIES INCORPORATED — SHEET SIZE 6S

223-10-19952-GS KIMBERLY

PART OF SC 51

PCI OUTPULSING



DRAWING ISSUE

ISSUE 65A

AUTOMATIC TEST CIRCUIT

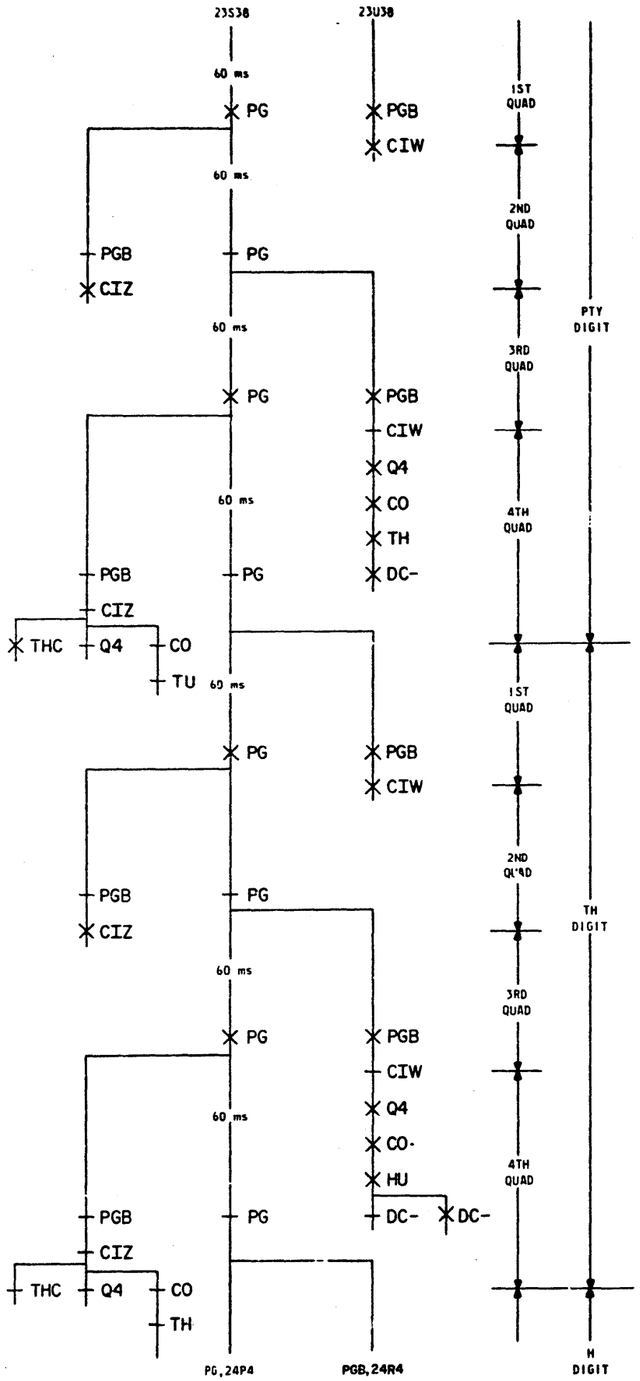
SD-25161-01-E23

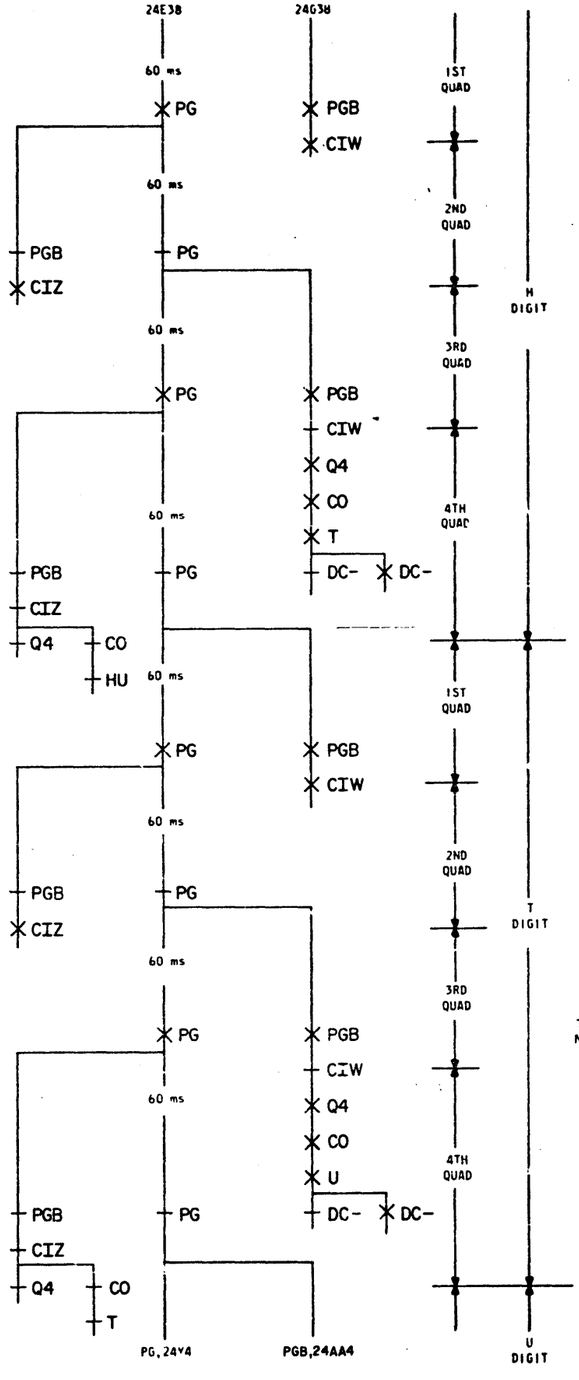
BELL TELEPHONE LABORATORIES INCORPORATED

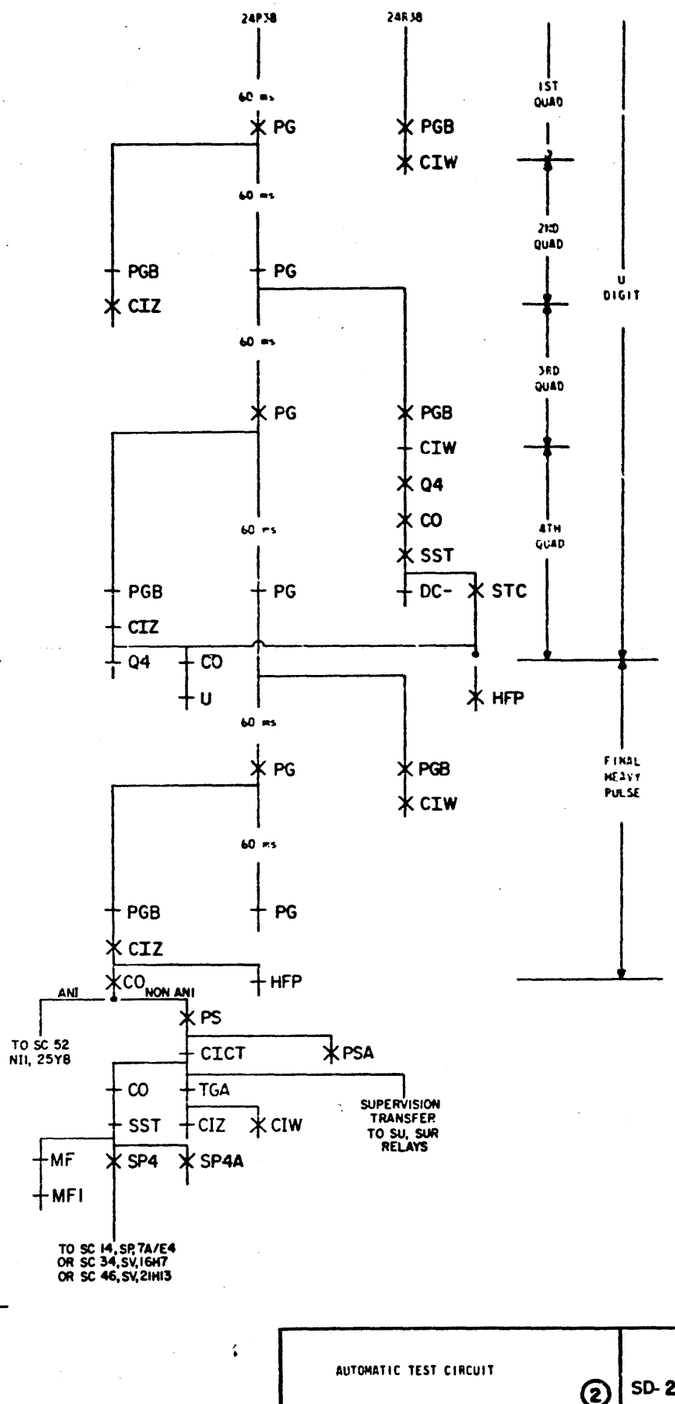
SD-25161-01-E23

PART OF SC 51

PCI OUTPULSING







DRAWING ISSUE

ISSUE 63B

AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-E24

SD-25161-01-E24

SC 52

MF ANI TESTING

FROM SC 1, TII.2A/YI6

TI

FROM SC 29, CA3,13Q39

FROM SC 28, WC,13Q6 & 13Q22

TR

TD

LOOP ON HOOK

SU

LOOP REVERSAL OFF HOOK

SUI

SUR

SU

LOOP REVERSAL ON HOOK

RB

SU

SUR

SG

X POINTS CLOSE

TO SC 22,DM-,IOVI7 OR SC 33, DM-,I5W5

ADM-

ABC-

DM-

FROM SC 1, DM-,2A/AB7

7DG

MFC

WK

ANIC

MDP

MF

OI-

FROM SC 21, C3,I3T8

C3

MFI

P

CKP

PG (CLOSE 4 & 7)

KP

C5

C4

TC

100 ms

PG (CLOSES 3 & 7)

PGA

KPI

ADG

60 ms

BDG

DC-

CDG

TH

HU

T

PG,25T4

25D38

STOP PULSING

NII

STC

LOOP REVERSAL OFF HOOK

SUR

START PULSING

NI2

AID LAMP

PSA

MF

CDG

SP4

NII

MFI

SP4A,25AA2I

FROM SC 5I, 24V30

SST

CICT (T,R CONNECTED TO MF PULSER)

CO

TGA

CIW

CIZ

25T36

SP4A

ST (TONE DETECTOR)

1000Hz SIGNAL RECEIVED

HTF (TONE DETECTOR)

HTT (TONE DETECTOR)

CT (REG)

DRAWING ISSUE

ISSUE 65A

AUTOMATIC TEST CIRCUIT

(2)

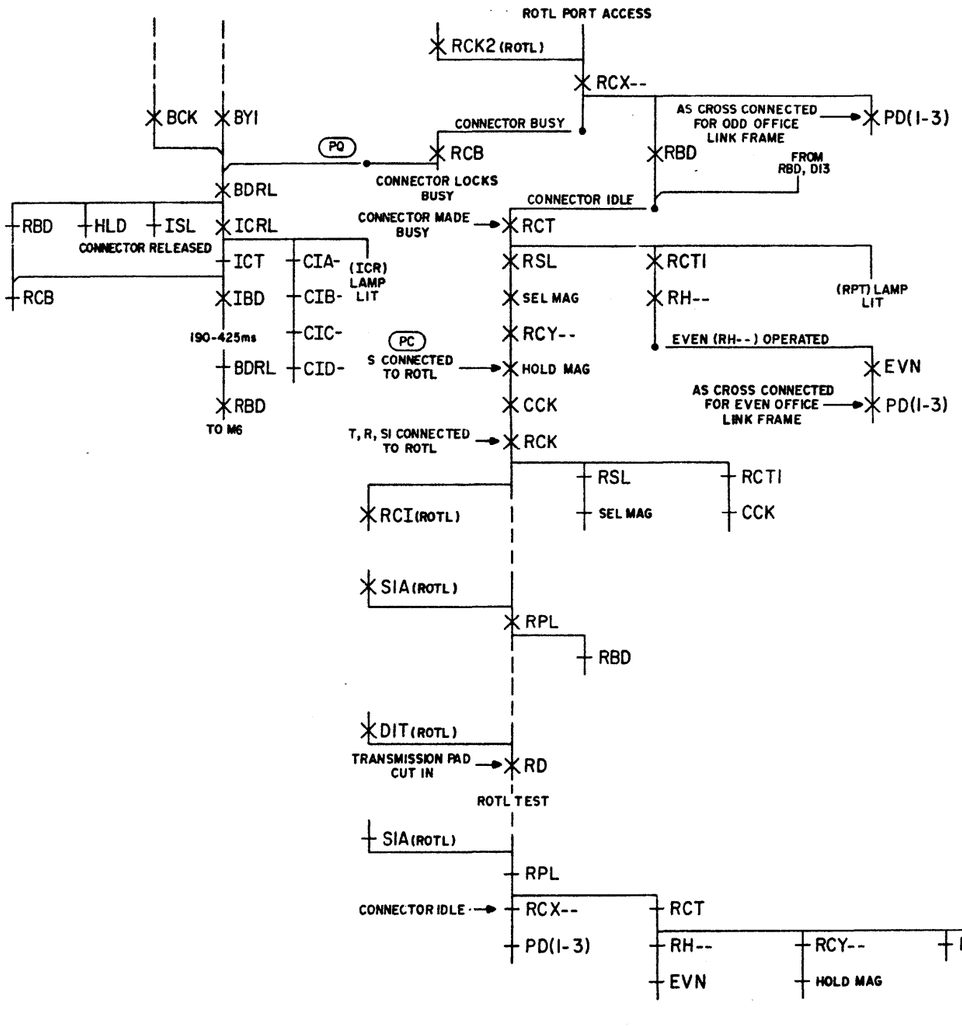
SD-25161-01-E25

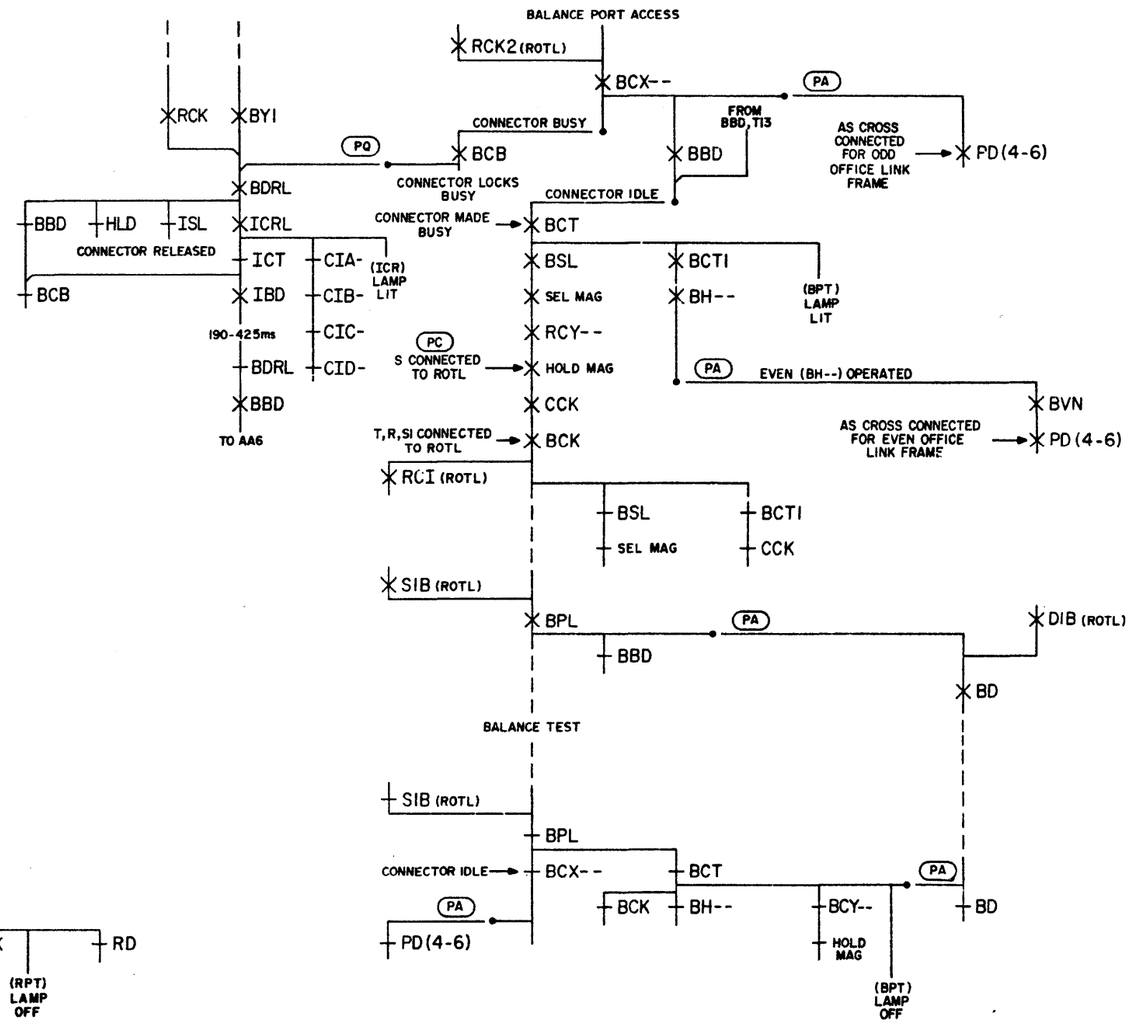
BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

SD-25161-01-E25

SC 53
ROTL ACCESS





NOTE:
(ICRL) RELAY REMAINS LOCKED OPERATED UNTIL THE ITT FRAME IS MANUALLY RESTORED TO NORMAL.

ISSUE 68B

AUTOMATIC TEST CIRCUIT

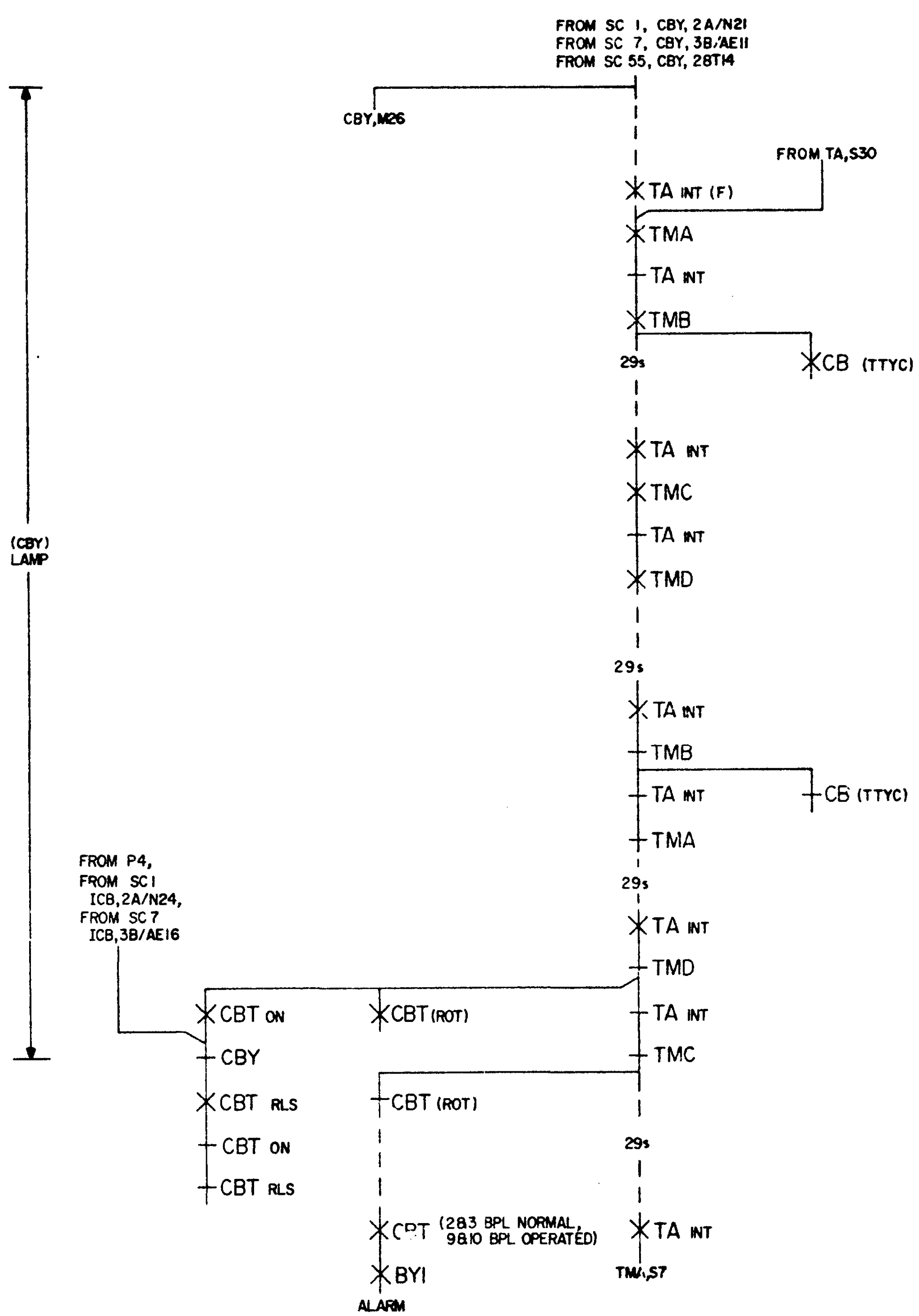
SD-25161-01-E26

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SC 54

CONNECTOR BUSY TIMING



ISSUE 66B

AUTOMATIC TEST CIRCUIT

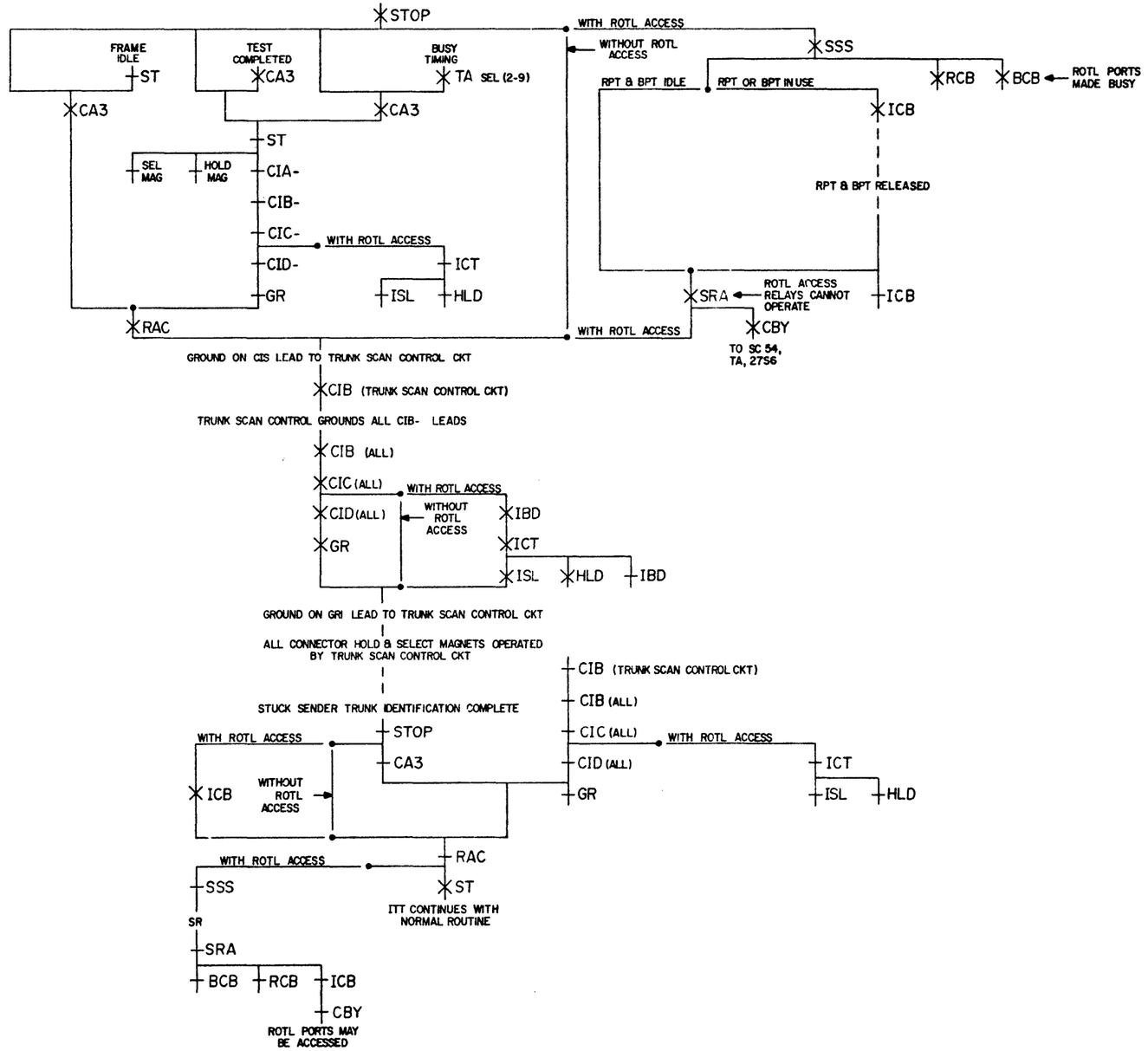
SD-25161-01-E27

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SC 55

CONNECTOR USE FOR STUCK SENDER TRUNK IDENTIFICATION



ISSUE 66B

AUTOMATIC TEST CIRCUIT

SD-25161-01-E28

BELL TELEPHONE LABORATORIES INCORPORATED

6S

CIRCUIT REQUIREMENTS

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT	APPARATUS FIG	MECH REQT BSP FIG.	MECH REQT CONT PRES	MECH REQT ARM. TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	CIRCUIT PREPARATION TEST CLIP DATA CONN BAT.	CIRCUIT PREPARATION TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	TEST FOR	AFTER SOAK ma	TEST ma	READJ ma	REMARKS
MAGNETS																	
G	206BP SEL		3						2(G)	F/V			0		SEE BSP		STEPPING
									1(G)	F/V			0		SEE BSP		RUNNING
GA	206BP SEL		8				5B(ST)		2(GA)	F/V			0		SEE BSP		STEPPING
							5B(ST)		1(GA)	F/V			0		SEE BSP		RUNNING
H	206BP SEL		3						2(H)	F/V	1		0		SEE BSP		STEPPING
									1(H)	F/V	1		0		SEE BSP		RUNNING
HOLD	328F		22	1					R(HOLD)	GRD			0		20	19	
SEL	SW			103					RB OR LT (SEL)	GRD			0		38	36	
HOLD	L-98097	A	1	2					T(HOLD)	GRD			0		14.2	13.5	
SEL	SW			103					RB OR LT (SEL)	GRD			0		33	31	
HOLD	301E, 305D SW	B	1	2					T(HOLD)	GRD	2		0		17.5	16.5	
SEL				103					RB OR LT (SEL)	GRD			0		33	31	
HOLD	325D	YH	1	2					T(HOLD)	GRD			0		17.5	16.5	
SEL	SW			103					RB OR LT (SEL)	GRD			0		38	36	
HOLD	315D	ZB	1	2					T(HOLD)	GRD			0		17.5	16.5	
SEL	SW			103					RB OR LT (SEL)	GRD			0		37.5	36	
S	206N SEL		3						2(S)	G/V	3		0		SEE BSP		STEPPING
									1(S)	G/V	3		0		SEE BSP		RUNNING
SP	206N SEL		6				2T(AV2), (AV2)NO, 6T(AV2)		2(SP)	G/V			0		SEE BSP		STEPPING
									1(SP)	G/V			0		SEE BSP		RUNNING
TA	206N SEL		3				6T(BY) 3T(TBL)		2(TA)	G/V			0		SEE BSP		STEPPING
									1(TA)	G/V			0		SEE BSP		RUNNING
TST	206N SEL		5				1T(BK)		2(TST)	G/V			0		SEE BSP		STEPPING
									1(TST)	G/V			0		SEE BSP		RUNNING

TEST NOTES:

1. INSULATE 2T AND 5T(ST), 2T(S). TERM. 1 OF SEL(S) AND TERM. 1 OF SEL(G).
2. THE 301E SW IS DESIGNATED D OPTION AND 305D SW IS DESIGNATED ZA OPTION.
3. INSULATE 8T(ST), TERM. 1 OF SEL (G) AND TERM. 1 OF SEL (H).

CIRCUIT REQUIREMENTS

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT	APPARATUS FIG.	MECH REQT BSP FIG.	MECH REQT CONT PRES	MECH REQT ARM. TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	CIRCUIT PREPARATION TEST CLIP DATA CONN BAT.	CIRCUIT PREPARATION TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	TEST FOR	AFTER SOAK ma	TEST ma	READJ ma	REMARKS
RELAYS																	
0	208AB, 208G		5				1T(BK)	8B(C)		BAT.	1		0		16	15	
													NO		13	14	2S OPTION PROVIDED
													R		6.7	7.1	
1-2	1/2AK46		63	19					1U(1-2)	GRD			0		26.5	25	MTD WITH (CIG) REL
1-9	208AB, 208G		5				1T(BK)	8B(C)		BAT.	2		0		16	15	
													NO		13	14	2S OPTION PROVIDED
													R		6.7	7.1	
1'-9'	208B		5				1T(BK)	8B(C)		BAT.	3		0		16	15	
													NO		13	14	2S OPTION PROVIDED
103	U1031		47	210/210	H	44			T(103)	GRD			0		13	12.3	
2DG	AJ5		78	220					U(2DG)	GRD			0		13.3	12.6	
2W	U1307		29	215/215	H	47			T(2W)	GRD			0		21.5	20.5	
2WR	U162		28	108/132	H	47			T(2WR)	GRD			0		17.8	17	
2WS	U457		30	118/148	H	50			T(2WS)	GRD			0		14.2	13.5	
4DG	AJ5	RC	13	220					U(4DG)	GRD			0		13.3	12.6	
5DG	AJ5	RC	13	220					U(5DG)	GRD			0		13.3	12.6	
6DG	1/2AK6	PX	13	2					1L(6DG)	GRD			0		29.0	25.5	MTD WITH (TWI) REL
7DG	AJ5	RC	13	220					U(7DG)	GRD			0		13.3	12.6	
A	U53		5	118/145	H	50			T(A)	GRD			0		10.5	10	
A1	U480		5	132/111	H	47			T(A1)	GRD			0		17.5	16.5	
													NO		10.4	11	
A2	U321		5	109/148	H	47			T(A2)	GRD			0		8.7	8.2	
A3	U386		5	38/148	H	47			T(A3)	GRD			0		10.1	9.6	
A4	U488		5	307/160	H	47			T(A4)	GRD			0		18	17	
AA	AF79	VU	42	205			(TN)0		U(AA)	GRD			0		9.7	9.2	
ABC (EVEN)	1/2AK2		65	1					1L(ABC--)	GRD			0		12.1	11.5	MTD WITH (ABC(ODD)) REL
ABC (ODD)	1/2AK2		65	1					1U(ABC--)	GRD			0		12.1	11.5	MTD WITH [ABC(EVEN)] REL
AC1	AJ5	OB	66	220			12M(AC1)		U(AC1)	GRD			0		13.3	12.6	
AC2	AJ5	OC	66	220			12M(AC2)		U(AC2)	GRD			0		13.3	12.6	
AC3	AJ5	OD	66	220			12M(AC3)		U(AC3)	GRD			0		13.3	12.6	
ADG	AJ15	RC	13	249			(7DG)0		U(ADG)	GRD			0		42.5	40.5	
ADM (EVEN)	1/2AK13		68	203			(F1V)NO		1L(ADM)	GRD			0		24.0	23.0	MTD WITH [ADM (ODD)] REL
ADM (ODD)	1/2AK13		68	203			(F1V)NO		1U(ADM)	GRD			0		24.0	23.0	MTD WITH (ADM (EVEN)] REL

TEST NOTES:

1. CONN DIRECT GRD TO 1(1') RELAY.
2. CONN DIRECT GRD TO NO. 2 CONTACT OF THE ASSOCIATED PRIME COUNTING RELAY.
3. CONN DIRECT GRD TO NO. 1 CONTACT OF THE ASSOCIATED COUNTING RELAY.

DRAWING ISSUE

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-FIA

BELL TELEPHONE LABORATORIES INCORPORATED

6S

E-7423 (10-69) CBL

CIRCUIT REQUIREMENTS

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT	APPARATUS FIG.		MECH REQT BSP FIG.	MECH REQT CONT PRES	MECH REQT ARM TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	CIRCUIT PREPARATION TEST CLIP DATA CONN BAT.	CIRCUIT PREPARATION TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	DIRECT CURRENT FLOW REQT TEST FOR	DIRECT CURRENT FLOW REQT AFTER SOAK mA	DIRECT CURRENT FLOW REQT TEST mA	DIRECT CURRENT FLOW REQT READJ mA	REMARKS
ALI	U234		32		160/108	H	47			T(ALI)	GRD			0		19	18	
ALM	U1421		32		169/161	H	56			T(ALM)	GRD			0		14.5	13.8	
AMB	AF13	VW	42		215					U(AMB)	GRD			0		13.1	12.4	
AN	U99		5		303/108	H	59			T(AN)	GRD			0		27.5	26	
ANI	U73		5		146/117	H	47			T(ANI)	GRD			0		20.5	19.5	
ANIC	AJ5		66		220					U(ANIC)	GRD			0		13.3	12.6	
ANIC	U1095		62		167/163		65			T(ANIC)	GRD			0		34.5	32.5	
ANIT	AJ5	OB	66		220					U(ANIT)	GRD			0		13.3	12.6	
AR	1/2AK4		42		202			5M(AR)		1L(RTF)	GRD			0		11.9	11.3	MTD WITH (PTF) REL
AST	AJ43		56		249									0		24.5	23	WDG ALONE
										U(AST)	GRD			0		47.5	45	PAR COMB. OF (AST) & (ASTA) REL
ASTA	1/2AK22		56		216							1		0		27.5	26	WDG ALONE
										1L(ASTA)	GRD			0		70.5	67	PAR COMB. OF (AST) & (ASTA) REL
ASTF	AJ62		56		313					U(ASTF)	GRD			0		38	26	
														NO		21.5	22.5	
AV	U104		12		152/137	H	47			T(AV)	GRD			0		22.5	21	
AV1	U199		6		121/121	H	50			T(AV1)	GRD			0		12.2	11.6	
AV2	U145		6		121/108	H	50	1(SP)SEL		TR(AV2)	GRD		S	0		23		
										TF(AV2)	GRD		P	0		19	18	
BBD	1/2AK4		73		202					1U(BBD)	GRD			0		11.9	11.3	MTD WITH (RBD) REL
BC	U441		5		114/114	H	50							0		11.7	11.1	WDG ALONE
																26	24.7	COMB. OF (BC) & (BC1) RELAYS
BC1	U318		5		150/179	H	50							0		12.3	11.7	WDG ALONE
								8B(BC)		T(BC1)	GRD			G		27.5	26	COMB. OF (BC) & (BC1) RELAYS
BCB	1/2AK46		73		19					1U(BCB)	GRD			0		26.3	25	MTD WITH (RCB) REL
BCK	AJ15		73		249					U(BCK)	GRD			0		43	40.5	
BCR	U943	OJ	K		324/160	H	53			1F(BCR)	GRD		P	0		29.5	28	
													S	0		15.5	14.6	
BCR	AF8	OK	K		200				5T(AV2)	1U(BCR	GRD		P	0		19.5	18.5	
													P	NO		11.4	12.0	
										2U(BCR)			S	0		11.7	11.1	
BCT	AJ15		73		249					U(BCT)	GRD			0		43	40.5	
BCT1	AJ202		73		500					U(BCT1)	GRD			0		43	40.5	
BCX--	AJ202		74		500			11(BPL)		U(BCX--)	GRD			0		43	40.5	
BCY--	AJ202		74		500					U(BCY--)	GRD			0		43	40.5	
BD	1/2AK4	PA	73		202					1L(BD)	GRD			0		11.9	11.3	MTD WITH (PD6) REL
BDG	AJ15	RC	13		249					U(BDG)	GRD			0		42.5	40.5	
BDG	U591		19		119/113	H	35			T(BDG)	GRD			0		26	25	
BDRL	AG1	PQ	72		358			2B(IBD)			GRD		36	0		12.8	12.1	
													36	H		2.7	2.5	
													36	R		1.3	1.6	
BH--	1/2AK4		73		202					1U(BH--)	GRD			0		11.9	11.3	MTD WITH (RH--) REL
BK	U523	WT	3		110/106	H	44	3T(TR)		T(BK)	GRD			0		11.4	10.8	

CIRCUIT REQUIREMENTS

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT	APPARATUS FIG.		MECH REQT BSP FIG.	MECH REQT CONT PRES	MECH REQT ARM TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	CIRCUIT PREPARATION TEST CLIP DATA CONN BAT.	CIRCUIT PREPARATION TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	DIRECT CURRENT FLOW REQT TEST FOR	DIRECT CURRENT FLOW REQT AFTER SOAK mA	DIRECT CURRENT FLOW REQT TEST mA	DIRECT CURRENT FLOW REQT READJ mA	REMARKS

TEST NOTES:

1. MOUNTED WITH (RNA) REL.

CIRCUIT REQUIREMENTS

DRAWING ISSUE: 36D | 37D | 41D | 46AC | 47D | 52D | 60D | 61D

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPTION	APPARATUS APP PTS	APPARATUS RATING	MECH REQT BSP FIG.	MECH REQT CONT PRESS	MECH REQT ARM TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	TEST CLIP DATA CONN BAT.	TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	TEST FOR	AFTER SOAK MA.	TEST MA.	READ MA.	REMARKS
BK	U1010	WU	3		149/147	H	47	3T(TR)		T(BK)	GRD			0		11.7	11	
										T(BK)	GRD			NO		6.3	6.7	
BLI	U333		5		150/150	H	50							0		16.5	15.5	WDG ALONE
								68(BL)		T(BL)	GRD			0		36.5	34.5	COMB. OF (BL)&(BLI) RELAYS
BLI	U177		5		139/139	H	59							0		20	19	WDG ALONE
								68(BL)		T(BLI)	GRD			0		45	42.5	COMB. OF (BL)&(BLI) RELAYS
BL2	U937		13		179/139	H	59	4T(BL2)		T(BL2)	GRD			0		28.5	27	
BL4	U236		23		112/112	H	29			T(BL4)	GRD			0		9.1	8.5	
BO'	208C		5											0		12.5	12	WDG ALONE
														NO		10.5	11	
								1(1')		2B(1A)	B/G			0		25	24	COMB. OF (BO') & (FO') RELAYS.
								1(1')		2B(1A)	B/G			NO		21	22	ZR OPTION PROVIDED
								(0)NO		8B(C)	BAT.	1		0		25	24	COMB. OF (BO') & (FO')
								(0)NO		8B(C)	BAT.	1		NO		21	22	RELAYS. ZS OPTION PROVIDED
BPL	1/2AK4		73		202					1U(BPL)	GRD			0		11.9	11.3	MTD WITH (RPL) REL
BSL	AF24		73		8					U(BSL)	GRD			0		30.5	29	
BTG	U417		41		103/112	H	50			12T(BTG)	GRD			0		9.7	9.2	
BVN	1/2AK4	PA	73		202					2L(BVN)	GRD			0		11.9	11.3	MTD WITH (EVN) REL
BY	U395		3		121/122	H	50	4B(BY)		T(BY)	GRD			0		11.1	10.5	
BYI	U624	X	3		101/101	H	29			T(BYI)	GRD			0		6.7	6.3	
BYI	U207	JJ	3		123/123	H	29			7T(BYI)	GRD		P	0		7.2	6.8	
BYI	AJ5	OH	3		220					U(BYI)	GRD			0		13.2	12.6	
C	U438		5		127/127	H	47	1T(BK)		T(C)	GRD			0		17.5	16.5	
C1	U177		5		139/139	H	50	B(C1)			BAT.			0		20	19	
C2	U308		5		134/120	H	35			T(C2)	GRD			0		8.2	7.8	
C2A	U438	VP	5		127/127	H	47			T(C2A)	GRD			0		17.5	16.5	
C3	U108		13		115/135	H	44			T(C3)	GRD			0		22	21	
C4	U338		13		162/162	H	41			T(C4)	GRD			0		20.5	19.5	
C5	U50	VF	13		127/112	H	47			T(C5)	GRD			0		10.3	9.8	
CA	U544	ZT	3		130/111	H	44			T(CA)	GRD			0		8	7.6	
CA	U545	S	3	M.D.	101/101	H	20			T(CA)	GRD	2		0	FS	6.2	5.9	
										T(CA)	GRD	2		R	FS	0.4	0.5	
CA	U1250	R	3		111/101	H	20			T(CA)	GRD			0		6.3	6	
CA1	U413		3		104/101	H	44	1T(CA1)		T(CA1)	GRD			0		9.9	9.4	
CA2, CA2	U143	XG	3		108/110	H	47			T REL TST	GRD			0		8.9	8.4	
CA3	U1310	XH	3		148/137	H	47			T(CA3)	GRD			0		10.2	9.7	
CA3	U1312	RY	3		103/150		50			12T(CA3)	GRD			0		11.8	11.3	
CA4	U163	Q	J		144/144	H	35			T(CA4)	GRD	2		0	FS	7.6	7.2	
										T(CA4)	GRD	2		NO	FS	5	5.3	
										T(CA4)	GRD	2		R	FS	0.4	0.5	
CA4	U1222	P	J		110/144	H	35			T(CA4)	GRD			0		7.4	7	
										T(CA4)	GRD			NO		4.4	4.7	
CA4	U1055		K		335/130	H	59			T(CA4)	GRD			0		23.5	22	
CA5	U143	YY	12		108/110	H	47			T(CA5)	GRD			0		8.9	8.4	
														H		2.5	2.3	
														R		1.3	1.5	
CBY	AJ15		72		249					U(CBY)	GRD			0		43	40.5	
CCK	316M		73		1					9(CCK)	GRD			0		1.0		
										9(CCK)	GRD			RLS		0.3		
CDG	AJ15	RC	13		249					U(CDG)	GRD			U		42.5	40.5	
CIA-CID	U115		2		113/113	H	29			T REL TST	GRD			0		10.2	9.7	
CICT	U1073		70		161/163	H	59			T(CICT)	GRD			0		31.5	30	
CIG	1/2AK6		63		19					1L(CIG)	GRD			0		26.5	25	MTD WITH (1-2) REL
CIR	AF92		63		242					U(CIR)	GRD					65	62	
CIT	AF90		63		242					U(CIT)	GRD					65	62	
CIW	AJ501		63		249			5(CIZ)		U(CIW)	GRD			0		43	40.5	
CIZ	AJ501		63		249					U(CIZ)	GRD			0		43	40.5	
CKP	280AR		18		A				ADJ JK(R)	ADJ JK(T)	B/G	3		0	-46	2.2	1.1	
									ADJ JK(R)	ADJ JK(T)	B/G	3		NO	-46	0.0	0.8	
CNX	U188		48		161/161	H	53			13T(CNX)	GRD			0		18.5	17.5	
CNX1	Y304		48		180/180	H	47			10B(CNX1)	GRD			0	29	22	20.5	
														H	29	5	4.7	
														R	29	1.1	1.4	
CNX2	U485		48		177/156	H	56			10T(CNX2)	GRD			0		29.6	28	
CO	AJ15		63		249					U(CO)	GRD			0		43	40.5	
COD--	AF24		69		8			NSA(NO)		U(COD--)	GRD			0		30.5	29.0	
CP	239FL	ZE	4		B				1B(CP2)	1B(CP)RES	B/G	4		0	-65		1.1	
	OR								1B(CP2)	1B(CP)RES	B/G	4		NO	-65		0.8	
	280E	ZF	4						1B(CP2)	1B(CP)RES	B/G			0	-4	0.4	0.3	
									1B(CP2)	1B(CP)RES	B/G			R	4	0.0	0.0	

TEST NOTES:
1. CONN DIRECT GRD TO 2B(1A) REL.
2. ADJACENT RELAYS SHALL NOT BE ENERGIZED. SEE BSP.
3. SEE PAGE 14 FOR PULSING REQUIREMENTS.
4. CONN 500Ω±1% SHUNT ACROSS TEST LEADS.

PAGE 3

AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-F2

SD-25161-01-F2

CIRCUIT REQUIREMENTS

DRAWING ISSUE: 36D | 37D | 41D | 46AC | 47D | 52D | 60D | 61D

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPTION	APPARATUS APP PTS	APPARATUS RATING	MECH REQT BSP FIG.	MECH REQT CONT PRESS	MECH REQT ARM TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	TEST CLIP DATA CONN BAT.	TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	TEST FOR	AFTER SOAK MA.	TEST MA.	READ MA.	REMARKS
CP	280E	XJ	9		B				1B(CP2)	1B(CP) RES	B/G	1		0	-65		1.1	
									1B(CP2)	1B(CP) RES	B/G	1		NO	-65		0.8	
									1B(CP2)	1B(CP) RES	B/G			0	-4	0.4	0.3	
									1B(CP2)	1B(CP) RES	B/G			R	4	0.0	0.0	
									1B(CP2)	2B(CP)RES	B/G	1	P	0	-57		1.1	
									1B(CP2)	2B(CP)RES	B/G	1	P	0	-57		0.8	
									1B(CP2	2B(CP)RES	B/G	1	P	NO	-57	5.6	5.3	
									1B(LP2)	2B(CP)RES	B/G	1	P	0	-57	3.7	3.9	
													S	0		7.6		
CP1	U431		4, 9		108/111	H	47			T(CP1)	GRD			0		7.6		
CP2	U113		4, 9		132/101	H	47			T(CP2)	GRD			0		7.4	7	
CP3	AJ5	OH	9		220					U(CP3)	GRD			0		13.2	12.6	
CP3	U194	XY	9		103/114	H	50			T(CP3)	GRD			0		18	17	
CPT	U58	UM	3		127/150	H	50			U(CPT)	GRD		P	0		11.3	10.7	
CRA	1/2AK22		63		216					1L(CRA)	GRD			0		27.5	26	MTD WITH (CRB) REL
CRB	1/2AK22		63		216					1U(CRB)	GRD			0		27.5	26	MTD WITH (CRA) REL
CRC	1/2AK22		63		216					1L(CRC)	GRD			0		27.5	26	MTD WITH (HFP) REL
CT	12A M.R.	YR	3							5B(RP)	GRD			0		30	28	
	14LD M.R.	YS								5B(RP)	GRD			NO		21.5	23	
	14F M.R.	YT																
CTT	U696		28		130/108	H	47			TF(CTT)	GRD	2	P	0		23	22	
									BR(CTT)	TR(CTT)	B/G		S	0		13.5	12.9	
DC(0,2,4,6,8)	1/2AK6	RC	15		2					1L(DC-)	GRD			0		29.0	27.5	MTD WITH (DC1,3,5,7,9) REL
DC(1,3,5,7,9)	1/2AK6	RC	15		2					1U(DC-)	GRD			0		29.0	27.5	MTD WITH (DC0,2,4,6,8) REL
DC0-DC9	U6030	RB	15		108/108	H	47			T REL TST	GRD			0		19	18	
DDE	1/2AK42		78		223					1U(DDE)	GRD			0		10.5	10.0	MTD WITH (DDO) REL
DDO	1/2AK42		78		223					1L(DDO)	GRD			0		10.5	10.0	MTD WITH (DDE) REL
DID	AG4		46		39					U(DID)	GRD		P	0	36	12.4	11.8	
														H	36	1.7	1.6	
														R	36	0.9	1.2	
DL	U168		21		108/106	H	47			T(DL)	GRD			U		19.5	18.5	
DL1	U254		21		108/108	H	47			T(DL1)	GRD			0		17.5	16.5	
DM	U236		26		112/112	H	29			T(DM)	GRD			0		9.1	8.6	
DM-	AF83		53		8					U(REL TST)	GRD			0		8.2	7.8	
DP	U1317		18		117/148	H	47			T(DP)	GRD			0		19	18	
DP1	U940		18		127/127	H	47			T(DP1)	GRD			0		21	20	
DPC	U1301		18		123/123	H	29	1T(C2)		7(DPC)	GRD			0		14.1	13.4	
DPL	1/2AK4	RC	14		202					1L(DPL)	GRD			0		11.9	11.3	MTD WITH (WK) REL
DPL	U53	RB	14		118/145	H	50			T(DPL)	GRD			0		10.2	9.7	
DT1	U1181		41		161/172	H	53			13T(DT1)	GRD			0		23	22.5	
DT2	U227		41		119/103	H	50			13T(DT2)	GRD			0		11	10.5	
DT3	U74		41		128/108	H	47			5T(DT3)	GRD			0		19	18	
DTC	U194		41		103/114	H	50			12T(DTC)	GRD			0		18	17	
DW	U639		18		161/195	H	53	2T(WR)		T(DW)	GRD			0		33.5	32	
DZ	U576		18		146/146	H	47	2T(WR),1T(DW)		T(DZ)	GRD			0		21	20	
EAS	1/2AK4	QQ	41		202					1L(EAS)	GRD			0		23.5	22	
EP	U180		6		132/111	H	47			T(EP)	GRD			0		16	14.8	
EP1	U72	UN	6		120/110	H	35			T(EP1)	GRD			0		12.9	12.2	
EP1	U334	UP	6		151/120	H	41			7T(EP1)	GRD			0		17	16	
ESS	AF84	SX	5		236					U(ESS)	GRD			0		8.5	8.2	
										U(ESS)	GRD			NO		4.7	5.0	
EVN	1/2AK4		73		202					2U(EVN)	GRD			0		11.9	11.3	MTD WITH (BVN) REL
FB	1/2AK6		78		2					1U(FB)	GRD			0		29.0	27.5	MTD WITH (RPC) REL
FD	U436	N	5		144/101	H	35			T(FD)	GRD	3		0	FS	18	17	
										T(FD)	GRD	3		R	FS	1	1.3	
FD	U1247	M	5		110/101	H	35			T(FD)	GRD			0		17	18	
FD1	U66		5		111/110	H	35			T(FD)	GRD			0		5.7	5.4	
FDC	U1310		41		148/137	H	47	3T(FDC)		8T(FDC)	GRD			0		10.2	9.7	
FFT	14FM.R.		33							3B(R1)	GRD			0		30	28	
										3B(R1)	GRD			NO		21.5	23	

TEST NOTES:
1. CONN 500Ω±1% SHUNT ACROSS TEST LEADS.
2. SEE PAGE 15 FOR TIMING REQUIREMENTS.
3. ADJACENT RELAYS SHALL NOT BE ENERGIZED. SEE BSP.

PAGE 4

AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

ISSUE 68B

SD-25151-01-F2

CIRCUIT REQUIREMENTS

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT	APPARATUS FIG.	MECH REQT BSP FIG.	MECH REQT CONT PRES	MECH REQT ARM. TRVL.	CIRCUIT PREPARATION BLOCK OR INSULATE	CIRCUIT PREPARATION TEST CLIP DATA CONN BAT.	CIRCUIT PREPARATION TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	DIRECT CURRENT FLOW REQT TEST FOR	DIRECT CURRENT FLOW REQT AFTER SOAK MA	DIRECT CURRENT FLOW REQT TEST MA	DIRECT CURRENT FLOW REQT READJ MA	REMARKS
FO'	208C		5										O		12.5	12	WDG ALONE
													NO		10.5	11	
								1(1')	2B(IA)	B/G			O		25	24	COMB. OF (BO')&(FO')
								1(1')	2B(IA)	B/G			NO		21	22	REL. ZR OPT PROV.
FO'	208C		5				(O)NO	8B(C)		BAT.	1		O		25	24	COMB. OF (BO')&(FO')
							(O)NO	8B(C)		BAT.	1		NO		21	22	RELAYS. ZS OPT PROV.
FIV	AJ81		67	220					U(FIV)	GRD			O		24.0	23.0	
FLR	AJ14		42	250					1U(FLR)	GRD		P	O		22.5	21	
									2U(FLR)	GRD		S	O		13.3	12.6	
FS1	U607		32	148/130	H	47			T(FS1)	GRD	2		O		20.5	19.5	
FS2	U814		32	132/110	H	47			T(FS2)	GRD	2		O		21	20	
FSF	AF151		44	415					U(FSF)	GRD			O		95	90	
FST	14F MR	XT	33						LT1(FST)	GRD			O		30	28	
									LT1(FST)	GRD			NO		21.5	23	
FT	280A		32	A			6B(TCT1)	5(FT)	2(FT)	NGB		P	O	-65	3	1.5	
							3B(FS1)	5(FT)	2(FT)	NGB		P	NO	-65	O.C.	1.1	
								6(FT)	1(FT)	NGB		S	C		0.5		
G-	U236		4,11	112/112	H	29			T(G)	GRD			O		9.1	8.6	
G-	AF83		52	8					U REL TST	GRD			O		8.2	7.8	
GA	U333	OL	B	150/150	H	50			T(GA)	GRD			O		15.5	14.4	
GA	1/2AK4	OM	B	202					1U(GA)	GRD			O		11.9	11.3	MTD WITH (GB) REL
GB	U739	OL	B	120/120	H	35			T(GB)	GRD			O		10	9.3	
GB	1/2AK4	OM	B	202					1L(GB)	GRD			O		11.9	11.3	MTD WITH (GA) REL
GOS	U200		18	117/118	H	50			T(GOS)	GRD			O		10.4	9.9	
GR	U440		3	132/132	H	47			T(GR)	GRD			O		8.7	8.2	
H	U143		3	108/110	H	47			T(H)	GRD			O		8.9	8.4	
HI	Y62		3	188/115	H	35	2B(H)		T(HI)	GRD	3		O	FS	20.5	19.5	
							2B(H)		T(HI)	GRD	3		H	FS	2.4	2.2	
							2B(H)		T(HI)	GRD	3		R		1	1.3	
HA	U1262	XT	3	149/183	H	47			T(HA)	GRD			O		12.9	12.2	
HAD	U351		34	118/145	H	50	7T(HAD)		T(HAD)	GRD			O		20.5	19.5	
HFP	1/2AK22		63	216					1U(HFP)	GRD			O		27.5	26	MTD WITH (CRC) REL
HFT	1/2AK6		71	2					1U(HFT)	GRD			O		29.0	27.5	MTD WITH (HFV) REL
HFV	1/2AK6		71	2					1L(HFV)	GRD			O		29.0	27.5	MTD WITH (HFT) REL
HLD	AJ202		72	500					U(HLD)	GRD			O		43	40.5	
HMS	AF50		46	18					U(HMS)	GRD			O		23.5	22	
									U(HMS)	GRD			NO		12.5	13.2	
HN	313A		63	1					1(HN)	GRD			C	14	4.6		
HTR	1/2AK6		44	2			12(HTR)		1U(HTR)	GRD			O		29	27.5	MTD WITH (TSU) REL
HU	U1414		13	202/161	H	71	3T(IU)		T(HU)	GRD	3		O		38.5	37	
IA	U276		5	108/305	H	47			T(IA)	GRD			O		35.5	33.5	
IA1	U53		5	118/145	H	50			T(IA1)	GRD			O		10.5	10	
IA2	U114		5	132/106	H	47			T(IA2)	GRD			O		9.2	8.7	
IA3	U523		5	110/106	H	44			T(IA3)	GRD			O		11.4	10.8	
IB	AJ12		78	220					U(IB)	GRD			O		42.5	40.5	

CIRCUIT REQUIREMENTS

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT	APPARATUS FIG.	MECH REQT BSP FIG.	MECH REQT CONT PRES	MECH REQT ARM. TRVL.	CIRCUIT PREPARATION BLOCK OR INSULATE	CIRCUIT PREPARATION TEST CLIP DATA CONN BAT.	CIRCUIT PREPARATION TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	DIRECT CURRENT FLOW REQT TEST FOR	DIRECT CURRENT FLOW REQT AFTER SOAK MA	DIRECT CURRENT FLOW REQT TEST MA	DIRECT CURRENT FLOW REQT READJ MA	REMARKS
IBD	1/2AK7		72	203					1L(IBD)	GRD			O		26.8	25.5	MTD WITH (ICB) REL
IC	AF64		46	219			1W(IC)		U(IC)	GRD	4	P	O		11.2	10.6	
ICB	1/2AK7		72	203					1U(ICB)	GRD			O		26.8	25.5	MTD WITH (IBD) REL
ICRL	AJ5	PQ	72	220			(CBY)Q		U(ICRL)	GRD			O		13.3	12.6	
ICT	AJ15		72	249					U(ICT)	GRD			O		43	40.5	
IG	AJ12		78	220					U(IG)	GRD			O		42.5	40.5	

TEST NOTES:
1. CONNECT DIRECT GRD TO 2B(IA) RELAY.
2. SEE PAGE 15 (SHEET F8) FOR TIMING REQT.
3. ADJACENT RELAYS SHALL NOT BE ENERGIZED. SEE BSP.
4. CONTACT 6 SHALL MAKE BEFORE CONTACT 5 BREAKS.

DRAWING ISSUE

SID	CB

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2) SD-25161-01-F3A

BELL TELEPHONE LABORATORIES INCORPORATED — SIZE 6S

SD-25161-01-F3A

CIRCUIT REQUIREMENTS

APPARATUS				MECH REQT			CIRCUIT PREPARATION			TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT					REMARKS
DESIG	CODE	OPT	FIG.	BSP FIG.	CONT PRES	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA CONN BAT.	TEST CLIP DATA CONN GRD			TEST WDG	TEST FOR	AFTER SOAK MA	TEST MA	READJ MA	
IDS	AJ5		46	220			3B(IC)		U(IDS)	GRD		P	0		13.3	12.6	
IDT	AJ5		46	220			12B(IDT)		U(IDT)	GRD		P	0		13.3	12.6	WDG ALONE
												P	0		29.5	13.3	COMB. OF (IDT)&(IDT1)REL
IDT1	AJ500		46	226			12B(IDT1)		U(IDT1)	GRD		P	0		19.4	17.7	
												P	0		43.2	37.7	COMB. OF (IDT1)&(IDT)REL
IF	AF64		46	219					U(IF)	GRD	1	P	0		11.2	10.6	
ISL	AF24		7c	8					U(ISL)	GRD			0		30.5	29	
K	U624		7	101/101	H	29		B(K)	T(K)	B/G			0		6.7	6.3	
KP	U1414		13	202/161	H	71			T(KP)	GRD			0		38.5	37	
KP1	U6030	RB	15	108/108	H	47			T(KP1)	GRD			0		19	18	
KP1	1/2AK6	RC	15	2					IL(KP1)	GRD			0		29.0	27.5	MTD WITH (STC) REL
LC	U6022		18	192/192	H	SPL	1T(LD) 1T(LE)		T(LC)	GRD	2,4		0	FS	43	40.5	ARM. TRVL 26 TENSION
													R	FS	3	3.6	1T & 1B MIN 50 GRAMS
LD	U6020		18	144/104	H	SPL			TF(LD)	GRD	4	P	0	FS	29.5	28	ARM. TRVL 32 TENSION
									TF(LD)	GRD	4	P	NO	FS	18	19	1B MIN 50 GRAMS
									TF(LD)	GRD	4	P	R	FS	1.8	2.4	
LE	U6021		18	191/191	H	SPL	1T(LC) 3T(LE)		TF(LE)	GRD	2,3,4	P	0	FS	45.5	43	ARM. TRVL 32 TENSION
									TF(LE)	GRD	3,4	P	R	FS	4.6	5.2	3T & 3B MIN 50 GRAMS
									TR(LE)	GRD	4	S	0	FS	58		
LPD	U1363		18	112/134	H	35			T(LPD)	GRD			0		21	20	
LRD	U1363		19	112/134	H	35			T(LDR)	GRD			0		21	20	
M1	U173		32	148/145	H	47			T(M1)	GRD			0		9.6	9.1	
M1A	U333		32	150/150	H	50			T(M1A)	GRD			0		15.5	14.4	
M2	U173		32	148/145	H	47			T(M2)	GRD			0		9.6	9.1	
M3	U333		32	150/150	H	50			T(M3)	GRD			0		15.5	14.4	
M4	U328		32	149/118	H	50							0		14.4	13.7	WDG ALONE
									T(M4)	GRD	5		0		32	30.5	
M4A	U333		32	150/150	H	50							0		15.5	14.4	WDG ALONE
									T(M4A)	GRD	5		0		34.5	32	
MDP	U651		12	150/149	H	50			T(MDP)	GRD			0		26.5	25	
MF	U58		17	127/150	H	50			T(MF)	GRD			0		11.2	10.7	
MF1	U50		17	127/112	H	47			T(MF1)	GRD			0		10.3	9.8	

CIRCUIT REQUIREMENTS

DRAWING ISSUE 51D

APPARATUS				MECH REQT			CIRCUIT PREPARATION			TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT					REMARKS
DESIG	CODE	OPT	FIG.	BSP FIG.	CONT PRES	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA CONN BAT.	TEST CLIP DATA CONN GRD			TEST WDG	TEST FOR	AFTER SOAK MA	TEST MA	READJ MA	
MFC	U120		17	109/145	H	47	1T(C2)		T(MFC)	GRD			0		8.3	7.9	
MO	B1086		5	6		30		6T(G)	7T(A2)	B/G		P/S	0	FS	2.4	2.2	
								6T(G)	7T(A2)	B/G		P/S	R	FS	1.2	1.3	
MO1	U499		5	108/110	H	47							0		20.5	19.5	WDG ALONE
									T(MO1)	GRD			0		61	58	COMB. OF (MO1) & (BO)REL
MO2	U285		5	132/101	H	47			T(MO2)	GRD			0		16	15	
MO3	U242		5	108/132	H	47	B(MO3)		T(MO3)	B/G			0		18.5	17.5	
MTG	B167		5	1	30	47		1B(TF)	5T(XB)	B/G			0	-3	2.2	2.1	
								1B(TF)	5T(XB)	B/G			NO	3	1.5	1.6	
MV	U1227		32	110/110	SPL	SPL		B(MV)	T(MV)	B/G	6,7		0		9.5	9	ARM. TRVL 50
NI1	1/2AK4		66	202					IL(NI1)	GRD			0		11.9	11.3	MTD WITH (NI2) REL
NI2	1/2AK4		66	202					IU(NI2)	GRD			0		11.9	11.3	MTD WITH (NI1) REL
NO	U58		5	127/150	H	50			T(NO)	GRD			0		11.3	10.7	
NO1	239FM OR 280J	ZG	5	B				6B(NO)	4T(G)	B/G			0	-12		0.3	
								6B(NO)	4T(G)	B/G			NO	-12		0.2	
		ZH	5					6B(NO)	4T(G)	B/G			0	-12	1.6	1.5	
								6B(NO)	4T(G)	B/G			R	12	0.3	0.4	
NS	1/2AK4		42	202					IL(NS)	GRD			0		11.9	11.3	MTD WITH (PTF1)REL
NSA	1/2AK31		67	14					IL(NSA)	GRD			0		30.5	29.0	MTD WITH (NSTC) REL
NSC	AJ12		67	220					U(NSC)	GRD			0		42.5	40.5	
NSTC	1/2AK31	QE	67	14				1U(NSTC)		BAT.			0		23.5	22.5	MTD WITH (NSA) REL
NTL	U542		5	108/132	H	47			T(NTL)	GRD			0		8.7	8.2	
OF	239FU OR 280G	ZJ	5	B			1B(A4)	5B(S3)	1T(1A3)	B/G		P	0	-35		0.7	
							1B(A4)	5B(S3)	1T(1A3)	B/G		P	NO	-35		0.5	
		ZK	5				1B(A4)	5B(S3)	1T(1A3)	B/G		P	0	-35	2.4	2.2	
							1B(A4)	5B(S3)	1T(1A3)	B/G		P	R	-35	0.1	0.2	

TEST NOTES:
1. CONTACT 6 SHALL MAKE BEFORE CONTACT 5 BREAKS.
2. ARMATURE BACK TENSION MIN 40 GRAMS.
3. INSERT DUMMY PLUG IN (CKP) JACK.
4. ADJACENT RELAYS SHALL NOT BE ENERGIZED. SEE BSP.
5. CKT COMB. OF (M4) &(M4A) RELAYS.
6. WITH A NO.20 GAUGE CONTACTS 1T & 2T SHALL BREAK AND CONTACTS 3T & 4T SHALL NOT MAKE.
7. SEE PAGE 15 (SHEET F8) FOR TIMING REQT.

ISSUE 64B

AUTOMATIC TEST CIRCUIT (2) SD-25161-01-F3B

BELL TELEPHONE LABORATORIES INCORPORATED SHEET NO. 6S

SD-25161-01-F3B

CIRCUIT REQUIREMENTS

DRAWING ISSUE

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT.	APPARATUS FIG.	MECH REQT BSP FIG.	MECH REQT CONT PRES	MECH REQT ARM. TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	TEST CLIP DATA CONN BAT.	TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	TEST FOR	AFTER SOAK MA	TEST MA	READJ MA	REMARKS
CF1	J424		5	110/110	H	35	3S(IA1)		T(OF1)	GRD			C		20.5	19.5	
OTO-9	U384		24	148/148	H	47			T REL	GRD			C		10.1	9.6	
									T TST								
CN	Y236		19	112/115	H	59			T(CN)	GRD	4		C	67.5	64	60.5	
									T(CN)	GRD	4		H	67.5	7	6.6	
									T(CN)	GRD	4		R	67.5	1.9	2.4	
CN1	U695		32	113/113	H	29							Q		10.4	9.9	WDG ALONE
									T(CN1)	GRD	6		C		23	22	
CN2	U695		32	113/113	H	29							C		10.4	9.9	WDG ALONE
									T(CN2)	GRD	6		O		23	22	
OP	U580		54	132/132	H	47			T(OP)	GRD			O		17.5	16.5	
OP1	Y99		54	131/115	H	35	3T(OP)		T(OP1)	GRD	4		O	FS	11.1	10.5	
							3T(OP)		T(OP1)	GRD	4		H	FS	1	0.9	
							3T(OP)		T(OP1)	GRD	4		R	FS	0.5	0.6	
OP2	U234		54	116C/108	H	47	3T(OP), 3B(OP3A)		T(OP2)	GRD			O		19	18	
OP2A	Y319		54	224/188	SPL	35	3B(OP3A)		T(OP2A)	GRD	4,9		O	FS	23.5	22	
							3B(OP3A)		T(OP2A)	GRD	4,9		H	FS	2	1.9	
							3B(OP3A)		T(OP2A)	GRD	4,9		R	FS	1.2	1.3	
OP3	Y266		54	211/102	H	53			T(OP3)	GRD	4		O		24.5	23	
									T(OP3)	GRD	4		H		3.5	3.3	
									T(OP3)	GRD	4		R		0.9	1.1	
OP3A	U234		54	116C/108	H	47			T(OP3A)	GRD			O		19	19	
OST	U1431		64	163/103	H	59	11,10B(OST)		TF(OST)	GRD		P	O		37.5	35.5	
									TR(OST)	GRD		S	O		39	37	
OSTA	U1431		64	163/103	H	59			TF(OSTA)	GRD		P	O		37.5	35.5	
									TR(OSTA)	GRD		S	O		39	37	
OWM, OWM1	AJ15		51	249					U REL TST	GRD			O		42.5 95	40.5 90	WDG ALONE PAR.COMB.OF (OWM) & (OWM1) REL
P	280AR		16	A				(ADJ)JK-R	(ADJ)JK-T	B/G	2		O	-46	2.2	1.1	
								(ADJ)JK-R	(ADJ)JK-T	B/G	2		NO	-46	0.C.	0.8	
PI	U6018		18	123/120	H	35			TF(PI)	GRD	4	P	O	FS	14.4	13.7	
									TF(PI)	GRD	4	P	NO	FS	8.8	9.3	
									TF(PI)	GRD	4	P	R	FS	2.8	3	
									TR(PI)	GRD	4	S	O	FS	11.7		
								1T(SD2), 1B(LE)									
P2	U6017		18	130/108	H	47	1T(SD2)		T(P2)	GRD	4.7		O	FS	19.5	18.5	
							1T(SD2)		T(P2)	GRD	4		NO	FS	9.8	10.4	
							1T(SD2)		T(P2)	GRD	4		R	FS	2.4	2.6	
P3	U6016		18	120/130	H	44	1T(SD2)		T(P3)	GRD	4.8		O	FS	18.5	17.5	
							1T(SD2)		T(P3)	GRD	4		NO	FS	9.4	9.9	
							1T(SD2)		T(P3)	GRD	4		R	FS	2.4	2.6	
P4	U6017		18	130/108	H	47	1T(SD2)		T(P4)	GRD	4.7		O	FS	19.5	18.5	
							1T(SD2)		T(P4)	GRD	4		NO	FS	9.8	10.4	
							1T(SD2)		T(P4)	GRD	4		R	FS	2.4	2.6	
P5	U6016		18	120/130	H	44	1T(SD2)		T(P5)	GRD	4.8		O	FS	18.5	17.5	
							1T(SD2)		T(P5)	GRD	4		NO	FS	9.4	9.9	
							1T(SD2)		T(P5)	GRD	4		R	FS	2.4	2.6	
P6	U6018		18	123/120	H	35			TF(P6)	GRD	4	P	O	FS	14.4	13.7	
									TF(P6)	GRD	4	P	NO	FS	8.8	9.3	
									TF(P6)	GRD	4	P	R	FS	2.8	3	
							1T(SD2)		TR(P6)	GRD	4	S	O	FS	11.7		
PAS	U351		35	118/145	H	50	7T(PAS)		T(PAS)	GRD			O		20.5	19.5	
PB	122 MR, 140 MR, 142 MR	YB, YS, YT	3				KEY (DPB)O		3T(VT)	GRD			O		30	29	
									3T(VT)	GRD			NO		21.5	23	
PB	U423		4,9	132/132	H	47			T(PB)	GRD			C		19	18	
PC	U502		12	121/102	H	53			T(PC)	GRD			O		40.5	38.5	
PC1-PC4	U502		12	121/102	H	53	3B(PC1)		T REL TST	GRD			O		40.5	38.5	
PCIC	AJ5		70	220					U(PCIC)	GRD			O		13.3	12.6	
PD1	1/2AK4		73	202					IL(PD1)	GRD			O		11.9	11.3	MTD WITH (PD2) REL
PD2	1/2AK4		73	202					IU(PD2)	GRD			O		11.9	11.3	MTD WITH (PD1) REL
PD3	1/2AK4		73	202					IU(PD3)	GRD			O		11.9	11.3	MTD WITH (RD) REL
PD4	1/2AK4	PA	73	202					IL(PD4)	GRD			O		11.9	11.3	MTD WITH (PD5) REL
PD5	1/2AK4	PA	73	202					IU (PD5)	GRD			O		11.9	11.3	MTD WITH (PD4) REL
PD6	1/2AK4	PA	73	202					IU (PD6)	GRD			O		11.9	11.3	MTD WITH (BD) REL
PEM	U1262	XY	9	149/183	H	47			T(PEM)	GRD			O		12.9	12.2	
PEM	1/2AK4	OH	9	202					IL(PEM)	GRD			O		11.9	11.3	MTD WITH SPARE

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SD-25161-01-F4

CIRCUIT REQUIREMENTS

DRAWING ISSUE 52D, 53D, 58D, 61D

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT.	APPARATUS FIG.	MECH REQT BSP FIG.	MECH REQT CONT PRES	MECH REQT ARM. TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	TEST CLIP DATA CONN BAT.	TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	TEST FOR	AFTER SOAK MA	TEST MA	READJ MA	REMARKS
PG	290AN		16	A				(PG)JK-S	(PS)JK-P	B/G	1	P	C	-45	2.9	1.5	
								(PG)JK-S	(PG)JK-R	B/G	1	P	NC	-45	0.C.	1.1	
								(PG)JK-T	(PG)JK-S	B/G	1	S	C		0.7		
PGA	U293		17	130/130	H	44			T(PGA)	GRD	2		O		49.5	47.5	
PGB	AF512		63	207					U(RB)	GRD			O		26.5	25	
PH	U604		E, F, G	108/132	H	47			T(PH)	GRD			O		18	17	
									T(PH)	GRD			NC		9.3	9.8	
PLS	U5034		19	110/101	H	35			T(PLS)	GRD	2,3		O		24.5	23	
PR	U1262	XT	3	149/183	H	47			T(PR)	GRD			O		12.9	12.2	
PRP	U663		34	193/134	H	41	7T(PRP)		T(PRP)	GRD			O		27.5	26	
									T(PRP)	GRD			NO		18	19	
PRS	U1262	UH	3	149/183	H	47			T(PRS)	GRD			O		12.9	12.2	
PS	U1414		13	202/161	H	71	3T(TU)		T(PS)	GRD			O		38.5	37	
PSA	U1262	XWF	13	149/183	H	47			T(PSA)	GRD			O		12.9	12.2	
PT	1/2AK39	OH	3	221					1L(PT)	GRD			O		16.8	16	MTD WITH (RN1) REL
PT	U141	NG	3	132/132	H	47			T(PT)	GRD			O		18	17	
PTF	1/2 AK4		42	202				2U(PTF)		BAT			O		11.9	11.3	MTD WITH (RA) REL
PTF1	1/2 AK4		42	202					1U(PTF1)	GRD			O		11.9	11.3	MTD WITH (NS) REL
Q4	AJ15		63	249					U(Q4)	GRD			O		43	40.5	
R1	U499		33	108/110	H	47	4T(R1)		T(R1)	GRD			O		20.5	19.5	
R2	U576		33	148/148	H	47	4T(R1)		T(R2)	GRD			O		21	20	
RAC	AJ15		75	249			5(STOP)		U(RAC)	GRD			O		42.5	40.5	
RB	AJ15	RC	14	249					U(RB)	GRD			O		42.5	40.5	
R3	U1426	RB	14	170/229	H	53			T(RB)	GRD			C		26.5	25	
RBD	1/2AK4		73	202					1L(RBD)	GRD			O		11.9	11.3	MTD WITH (BBD) REL
RBT	U113	UR	25	132/101	H	47			T(RBT)	GRD	5		O		7.4	7	
RCB	1/2AK4A		73	19					1L(RCB)	GRD			O		26.3	25	MTD WITH (RCD) REL
RCK	AJ15		73	249					U(RCK)	GRD			O		43	40.5	
RCP	AF128	RH	3	254			2M(RCP)		1U(RCP)	GRD		P	O		23.5	22	
							1M(RCP)		2U(RCP)	GRD		S	O		25	23.5	
RCT	AJ15		73	249					U(RCT)	GRD			O		43	40.5	
RCT1	AJ202		73	500					U(RCT1)	GRD			O		43	40.5	
RCX--	AJ202		74	500			2(RPL)		U(RCX--)	GRD			O		43	40.5	
RCY--	AJ202		74	500					U(RCY--)	GRD			O		43	40.5	
RD	1/2AK4		73	202					1L(RD)	GRD			O		11.9	11.3	MTD WITH (PD3) REL
RF	U634		21	109/123	H	29	(DL)NO		T(RF)	GRD			O		21	20	
RF1	U410		21	170/157	H	50	(RF3)NO		T(RF1)	GRD			O		13.7	13	
RF2	Y311		21	190/188	H	35							O	FS	17	16	WDG ALONE
													H	FS	1.6	1.5	WDG ALONE
													R	FS	0.9	1.1	WDG ALONE
									T(RF2)	GRD	1		O	FS	30.5	28.5	COMB.WITH (RF2) RES
									T(RF2)	GRD	1		H	FS	2.9	2.7	COMB.WITH (RF2) RES
									T(RF2)	GRD	1		R	FS	1.5	1.8	COMB.WITH (RF2) RES
RF3	U67		21	135/108	H	47			T(RF3)	GRD			O		18	17	
RF4	U503		21	118/121	H	50		B(RF2)	T(RF4)	B/G			O		22	21	
RFC	U1113		21	114/114	H	50			T(RFC)	GRD			O		22	21	
RFT	U419		32	132/111	H	47			T(RFT)	GRD			C		15.5	14.8	
RH--	1/2AK4		73	202					1L(RH--)	GRD			O		11.9	11.3	MTD WITH (BH--) REL
RI-	U260		8	108/110	H	47	4T,5T(RI-), 3B,4B(RI-)		TF(RI-)	GRD		P	O		20	19	
									TR(RI-)	GRD		S	O		16.3	15.5	
RI-	U260		27	108/110	H	47	4T,5T(RI-), 3B,4B(RI-)		TF(RI-)	GRD		P	O		20	19	
									TR(RI-)	GRD		S	O		16.3	15.5	
RN	U36		3	134/123	H	35			T(RN)	GRD			O		7.3	6.9	
RN1	U13C	WY	3	148/137	H	47			T(RN1)	GRD			O		10.2	9.7	
RN1	1/2AK39	OH	3	221					1U(RN1)	GRD			O		11.3	10.7	MTD WITH (PT) REL
													H		4.5	4.2	
RNA	1/2AK22		56	216					1U(RNA)	GRD			O		27.5	26	MTD WITH (ASTA) REL
RO	U459		14	151/120	H	41			T(RO)	GRD			O		10.7	10.2	
RP	U321		5	109/148	H	47			T(RP)	GRD			O		8.7	8.2	
RP1	U158		5	132/111	H	47	(A4)O		T(RP1)	GRD			O		7.5	7.1	
RP2	U160	K	5	101/101	H	29			T(RP2)	GRD	4		O	FS	9.4	8.9	
									T(RP2	GRD	4		R	FS	0.6	0.8	

TEST NOTES:

1. PULSING REQUIREMENTS MAY BE CHECKED INDIRECTLY BY TESTING CKP,P,PGA, AND PLS RELAYS DEPENDING UPON TYPE OF PULSING REQUIRED, SEE PAGE 14.
2. SEE PAGE 14 FOR PULSING REQUIREMENTS.
3. FRONT CONT MAKE 13 TEST, 15 READJ, FRONT CONT, NOT MAKE 23 TEST, 20 READJ.
4. ADJACENT RELAYS SHALL NOT BE ENERGIZED. SEE BSP.
5. THE (BY) LAMP SHALL BE REMOVED FROM ITS SOCKET.
6. COMB. OF (ON1) AND (ON2) RELAYS.
7. WITH A 26 MIL GAUGE INSERTED BETWEEN THE STOP PINS AND CORE, CONTACTS 1T-2T SHALL NOT CLOSE WHEN THE RELAY IS ENERGIZED.
8. WITH A 26 MIL GAUGE, INSERTED BETWEEN THE STOP PINS AND THE CORE, CONTACTS 1B-2B SHALL NOT CLOSE WHEN THE RELAY IS ENERGIZED.
9. CONTACT MAKE 6 READJUST, 4 TEST. MIN SPRING TENSION (1T,3T AND 1B) 10 GRAMS READJUST, 9 GRAMS TEST.

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-F4

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S

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CIRCUIT REQUIREMENTS

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPTION	APPARATUS APP FIG	RATING	MECH REQT BSP FIG.	MECH REQT CONT PRESS	MECH REQT ARM TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	TEST CLIP DATA CONN BAT	TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	TEST WDG	DIRECT CURRENT FLOW REQT TEST FOR	AFTER SOAK MA.	TEST MA.	READJ MA.	REMARKS
RP2	U1229	J	5		111/101	H	29			T(RP2)	GRD			0		9.4	8.9	
RP3	U423		5		132/132	H	47	(RP2)NU		T(RP3)	GRD			0		18.5	17.5	
RP4	U285		5		132/101	H	47	3T(RP3)		T(RP4)	GRD			0		16	15	
RP5	U242		5		108/132	H	47	(RP4)NO		T(RP5)	GRD			0		18.5	17.5	
RP6	U308		5		134/120	H	35			T(RP6)	GRD			0		8.2	7.8	
RP7	U132		5		132/110	H	47			T(RP7)	GRD			0		19	18	
RP8	U471		5		108/108	H	47			TF(RP8)	GRD		P	0		25.5	24	
										TF(RP8)	GRD		S	0		26		
RPA	AJ12		78		220			(C1)NO, (C,STC)O		U(RPA)	GRD			0		42.5	40.5	
RPB	AJ15		78		249			(STC)O		U(RPB)	GRD			0		42.5	40.5	
RPC	1/2AK6		78		2					1L(RPC)	GRD			0		29.0	27.5	MTD WITH (FB) REL
RPL	1/2AK4		73		202					1L(RPL)	GRD			0		11.9	11.3	MTD WITH (BPL) REL
RPX	U285	ZX	5		132/101	H	47			T(RPX)	GRD					15.3	14.5	
RPY	U423	ZX	5		132/132	H	47			T(RPY)	GRD					19	18	
RS	U234	WA	32		160/108	H	47			T(RS)	GRD			0		19	18	
RSL	AF24		73		8					U(RSL)	GRD			0		30.5	29	
RST	12A MR	YR	3					KEY		5B(RP)	GRD			0		30	28	
	14D MR	YS	3					(REP)O		5B(RP)	GRD			NO		21.5	23	
	14F MR	YT	3															
										T(S)	GRD			R		6.9	7.3	
S	U436	N	3		144/101	H	35			T(S)	GRD	1		C	FS	18	17	
										T(S)	GRD	1		R	FS	1	1.3	
S	U1247	M	3		110/101	H	35			T(S)	GRD			0		17	16	
S1	Y66	W	5		137/131	H	41	3T (NO2)		T(S1)	GRD	1		C	FS	18.5	17.5	
										T(S1)	GRD	1		H	FS	2.4	2.2	
										T(S1)	GRD	1		R	FS	0.6	0.8	
S1	Y280	V	5		201/131	H	41	3T (NO2)		T(S1)	GRD	1		0	FS	19.5	18.5	
										T(S1)	GRD	1		H	FS	2.4	2.2	
										T(S1)	GRD	1		R	FS	1	1.3	
S1	U174	ZV	5		108/111	H	47	3T(NO2)		T(S1)	GRD			0		16.8	16	
S2	U6017		5		130/108	H	47			T(S2)	GRD			0		19.5	16.5	
S3	U360		5		153/164	H	53	2T(S3)		T(S3)	GRD			0		12.3	11.7	
S4	U108		5		121/108	H	50			T(S4)	GRD			0		10.1	9.6	
SAT	1/2AK4	QQ	41		202					1U(SAT)	GRD			0		23.5	22	
SBT	AF134		46		230					U(SBT)	GRD		P	0		10.3	9.8	
													P	NO		4.7	4.9	
SD1	U6113		16		120/120	H	35			TF(SD1)	GRD	1,2		0		38	36	
										T(SD1)	GRD	1		R		12.6	13.3	
SD2	U6114		18		110/110	H	SPL	3T(SD2)		TF(SD2)	GRD	1,3,4		R		38.5	36.5	ARM. TRVL 38
										TF(SD2)	GRD	1		R		12	12.7	
SDC	U1310		41		148/137	H	47	6B(SDC)		2T(SDC)	GRD			0		10.2	9.7	
SG	U591		16		119/113	H	35			T(SG)	GRD			0		26	25	
SGD	U145		18		121/108	H	50			TF(SGD)	GRD		P	0		19	18	
										TR(SGD)	GRD		S	0		23	21.5	
SK1	U67		18		145/108	H	47			T(SK1)	GRD			0		18	17	
SK2	U500		18		118/121	H	50		8(SK2)	T(SK2)	GRD			0		22	21	
SKTH	U254		13		108/108	H	47			T REL	GRD			0		17	16.5	
SKTU	U254	RB	13		108/108	H	47			T TST	GRD			0		17	16.5	

DRAWING ISSUE: 36D, 37D, 39AR, 45D, 46AC, 47D, 53D, 57A, 60D, 61D

TEST NOTES:

1. ADJACENT RELAYS SHALL NOT BE ENERGIZED. SEE BSP.
2. INSERT DUMMY PLUG IN (CKP) JACK.
3. CONTACTS 3T-4T AND 3B-4B SHALL NOT MAKE WITH 18 MIL. GAUGE, READJ, 20 MIL. GAUGE TEST. GAUGE BETWEEN ARM AND CORE AND WITH REL ELECTRICALLY ENERGIZED. CONTACTS 3T-4T, AND 3B-4B SHALL MAKE WITH 15 MIL. GAUGE READJ, 8 MIL. GAUGE TEST, GAUGE BETWEEN ARM AND CORE AND WITH REL ELECTRICALLY ENERGIZED.
4. CONTACTS 1T-2T AND 1B-2B SHALL BREAK WITH 10 MIL GAUGE BETWEEN ARM AND CORE WITH REL ELECTRICALLY OPERATED.

AUTOMATIC TEST CIRCUIT — SD-25161-01-F5

BELL TELEPHONE LABORATORIES INCORPORATED

CIRCUIT REQUIREMENTS

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPTION	APPARATUS APP FIG	MECH REQT BSP FIG.	MECH REQT CONT PRESS	MECH REQT ARM TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	TEST CLIP DATA CONN BAT	TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	TEST WDG	DIRECT CURRENT FLOW REQT TEST FOR	AFTER SOAK MA.	TEST MA.	READJ MA.	REMARKS
S0	U422		6	132/101	H	47	(C)O 1T(BK)		T(S0)	GRD			0		14.7	14	
S01	U423		6	132/132	H	47	(C)O 1T(BK)		T(S01)	GRD			0		18.5	17.5	
S02	U422		6	132/101	H	47	(C)O 1T(BK)		T(S02)	GRD			0		14.7	14	
S03	U423		6	132/132	H	47	(C)O 1T(BK)		T(S03)	GRD			0		18.5	17.5	
SP	239FP OR 280F	ZM ZN	5 5	8			1T(SP1) 1T(SP1) 1T(SP1)	4B(SP1) 4B(SP1) 4B(SP1)	B/G B/G B/G				0 -16 NO -16 R 16		0.4 0.3 0.3		
SP1	U199		5	121/121	H	50			T(SP1)	GRD			0		12.2	11.6	
SP2	U479		5	113/127	H	47	3B(NTL)		TR(SP2)	GRD		S	0		20.5	19.5	
SP2A	AF79	VU	42	205					U(SP2A)	GRD			0		9.7	9.2	
SP3	U386		5	148/148	H	47			T(SP3)	GRD			0		10.1	9.6	
SP4	U794		12	119/119	H	35			T(SP4)	GRD			0		22.5	21	
SP4A	AF79	VT	42	205					U(SP4A)	GRD			0		9.7	9.2	
SP6	U520		12	110/110	H	35			T(SP6)	GRD			0		13.6	12.9	
SP7	U500		12	118/121	H	50			T(SP7)	GRD			0		22.5	21	
SRA	1/2AK35	QR	73	202			SSS(NO)		1U(SRA)	GRD			0		12.5	11.8	MTD WITH (SSS) REL
SSK	U143		34	108/110	H	47			T(SSK)	GRD			0		8.9	8.4	
SSS	1/2AK35	QR	73	202			SRA(NO)		1U(SSS)	GRD			0	48	32	30	MTD WITH (SRA) REL
													H	48	4.5	4.2	
SST	U1414		13	202/161	H	71	3T(TU)		T(SST)	GRD			0		38.5	37	
ST	U333		3	150/150	H	50	2B(H),(BY) NO, INS 1(H) SEL, 1(G)SEL AND 1(S)SEL		T(ST)	GRD			0		16.5	15.5	
STC	1/2AK6	RC	15	2					1U(STC)	GRD			0		29	27.5	MTD WITH (KP1) REL
STC	U6030	RB	15	108/108	H	47			T(STC)	GRD			0		19	18	
STF	U333		40	150/150	H	50			1T(STF)	GRD			0		15.5	14.4	
STF1	U236		40	112/112	H	29			1T(STF1)	GRD			0		9	8.6	
STL, STLA	U1414		54	202/161	H	71							0		39	37	WDG ALONE
													NO		12.4	13.1	WDG ALONE
									T REL	GRD			0		90	85	PAR. COMB. OF (STL) & (STLA) RELAYS
									T TST	GRD			NO		27.2	29	
STOP	AJ15		75	249			SSS(NO)		U(STOP)	GRD			0		42.5	40.5	
STP	207A OR	D	5					5T(T1G)	2T(T1G)	B/G	1		0	35	11	10.5	
	268A	E	5					5T(T1G)	2T(T1G)	B/G	1		NO	35	9	9.5	
								5T(T1G)	2T(T1G)	B/G			R	35	6.5	6.9	
STR	AK30	UK	46	202			1M(STR)		2L(STR)	GRD			0		26.5	24.3	MOUNTED WITH (TRS) RELAY
STT	U432		28	132/101	H	47			T(STT)	GRD			0		14.8	13.7	
STV	U1316		32	160/132	H	47			T(STV)	GRD			0		9.4	6.9	
SU	280B	WJ	14	8				5T(AV)	3T(AV)	B/G			0 -30			0.7	
													NO -30			0.5	
													0 -30		2.9	2.7	
													R 30		0.6	0.7	
SU	280FG	WK	14	8				5T(AV)	3T(AV)	B/G			0 -14			0.3	
													NO -14			0.2	
													0 -14		3.9	3.7	
													R 14		1.4	1.5	
SU1	U601	RB	14	112/148	H	47			T(SU1)	GRD			0		19	18	
SU1	AJ15	RC	14	249					U(SU1)	GRD			0		42.5	40.5	
SUL	U899		29	130/131	H	47			T(SUL)	GRD			0		29.5	28	
SUR	280E		14	8				3T(AV)	5T(AV)				0 -30			0.7	
													NO -30			0.5	
													0 -30		2.9	2.7	
													R 30		0.6	0.7	
SV	U6050		32	128/110	H	41			T(SV)	GRD			0		15.5	14.6	
SV1	AF120	SU	32	406					U(SV1)	GRD			0		20.5	19.5	
									U(SV1)	GRD			NO		13.5	14.5	

DRAWING ISSUE: 36D, 37D, 39AR, 45D, 46AC, 47D, 53D, 57A, 60D, 61D

TEST NOTES:

1. THE RELEASE KEY SHALL BE KEPT OPEN WHEN CHECKING THE OPERATE AND NON-OPERATE VALUES.

ISSUE 68B

AUTOMATIC TEST CIRCUIT (2) — SD-25161-01-F5

BELL TELEPHONE LABORATORIES INCORPORATED — SPEC SHEET 6S

CIRCUIT REQUIREMENTS

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT.	APPARATUS AFP FIG.	MECH REQT BSP FIG.	MECH REQT CONT PRES	MECH REQT ARM. TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	TEST CLIP DATA CONN BAT.	TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	TEST FOR	AFTER SOAK MA	TEST MA	READJ MA	REMARKS
SW	U156	H	6	111/101	H	29			T(SW)	GRD	1		0	FS	5.6	5.3	
									T(SW)	GRD	1		R	FS	0.5	0.6	
SW	U1228	S	5	111/101	H	29			T(SW)	GRD			0		6.3	6	
SW1	U320		6	120/111	H	35			T(SW1)	GRD			0		25	23.5	
									T(SW1)	GRD			NO		17	18	
SY	239FC OR 280A	ZP ZQ	6 6	A				T(SY)JK R(SY)JK	SL(SY)JK T(SY)JK	B/G B/G	2 2	P S	0 0	-65	2.1 0.3	1.5	
								T(SY)JK	SL(SY)JK	B/G	2	P	NO	-65	OC	1.1	
SY1	U199		6	121/121	H	50			T(SY1)	GRD			0		12.2	11.6	
SYT	AF64	UL	44	219					U(SYT)	GRD			0		11.3	10.6	
T	U1414		13	202/161	H	71	3T(TU)		T(T)	GRD			0		38.5	37	
TA	U1262	WU	3	149/183	H	47			T(TA)	GRD			0		12.9	12.2	
TAT	U6113		32	120/120	H	35			T(TAT)	GRD			0		38	36	
TBL	U395		3	121/122	H	50	(TA)NOR 1(TA)SEL		T(TBL)	GRD			0		11.1	10.5	
TBT	U6110		32	193/129	H	41			T(TBT)	GRD			0		42.5	40.5	
TBY	AF119		42	266					U(TBY)	GRD			0		12.6	12.0	
TC	U1073		12	161/163	H	59			T(TC)	GRD			0		31.5	30	
TCT	U318		32	150/179	H	50			T(TCT)	GRD			0		11.7	11.1	
TCT1	U1113		32	114/114	H	50			T(TCT1)	GRD			0		22.5	21	
TCV	U1324	VH	35	163/163	H	59			T(TCV)	GRD			0		22.6	21.5	
TD	Y139		9	131/115	H	35			T(TD)	GRD	1		0	FS	21	20	
									T(TD)	GRD	1		H	FS	2	1.8	
									T(TD)	GRD	1		R	FS	0.9	1.2	
TD	Y62	U	4	188/115	H	35			T(TD)	GRD	1		0	FS	20.5	19.5	
									T(TD)	GRD	1		H	FS	2.4	2.2	
									T(TD)	GRD	1		R	FS	1	1.3	
TD	Y139	T	4	131/115	H	35			T(TD)	GRD	1		0	FS	21	20	
									T(TD)	GRD	1		H	FS	2	1.8	
									T(TD)	GRD	1		R	FS	0.9	1.2	
TD1	Y63		17	115/115	H	29			T(TD1)	GRD			0	FS	19.5	18.5	
									T(TD1)	GRD			H	FS	1.9	1.7	
									T(TD1)	GRD			R	FS	0.9	1.2	
TD2	Y139	UT	17	131/115	H	35			T(TD2)	GRD	1		0	FS	20.5	19.5	
									T(TD2)	GRD	1		H	FS	2.4	2.2	
									T(TD2)	GRD	1		R	FS	1	1.3	
TDS	AF52	UL	44	19					U(TDS)	GRD			O		29.5	28	
TDT	U1113		32	114/114	H	50			T(TDT)	GRD			O		22.5	21	
TDT1	U1113		32	114/114	H	50			T(TDT1)	GRD			O		22.5	21	
TET	U1113		32	114/114	H	50			T(TET)	GRD			O		22.5	21	
TF	U108	XJ	5	121/108	H	50			T(TF)	GRD			0		10.1	9.6	
TF	U53	XK	5	118/145	H	50			T(TF)	GRD			0		10.2	9.7	
TFT	U328		32	149/118	H	50			T(TFT)	GRD			0		14.4	13.7	
TG	316M		63	1				9(TG)	1(TG)	B/G			0		3.3	1.1	
TG1	U108		5	121/108	H	50							0		10.1	9.6	WDG ALONE
									T(TG1)	GRD			0		65.5	62	COMB. OF (TG1) REL AND (BE) RES

TEST NOTES:

1. ADJACENT RELAYS SHALL NOT BE ENERGIZED. SEE BSP.

2. THESE REQUIREMENTS SHOULD BE MET WITH THE CURRENT THROUGH THE RELAY WINDING IN EITHER DIRECTION.

DRAWING ISSUE: 45D, 47D, 49D, 56A, 60D

AUTOMATIC TEST CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

SD-25161-01-F6

PRINTED IN U.S.A.

CIRCUIT REQUIREMENTS

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT.	APPARATUS APP FIG.	MECH REQT BSP FIG.	MECH REQT CONT PRES	MECH REQT ARM TRVL	CIRCUIT PREPARATION BLOCK OR INSULATE	TEST CLIP DATA CONN BAT.	TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	TEST FOR	AFTER SOAK MA	TEST MA	READJ MA	REMARKS
TG2	B421		5	6		30		3B(TF)	5T(XB)	B/G			0		1.1	1	
								3B(TF)	5T(X8)	B/G			R		0.1	0.2	
TGA	AJ15		63	249					U(TGA)	GRD			0		43	40.5	
TH	U1414		13	202/161	H	71	3T(TU)		T(TH)	GRD			0		38.5	37	
THC	AJ15		63	249					U(THC)	GRD			0		43	40.5	
TI	U6051		4, 9	108/108	H	47	3T(TI1)		TR(TI) TF(TI)	GRD GRD		S P	0 0		17.5 36.5	16.5 34.5	
TI1	U559		4,9	147/130	H	44	3T(TI1)		T(TI1)	GRD			0		20.5	19.5	
TL4	U236		23	112/112	H	29			T(TL4)	GRD			0		9.1	8.6	
TMA	1/2AK30		72	202					IL(TMA)	GRD			0		23.5	22	MOUNTED WITH(TMB)REL
TMB	1/2AK30		72	202				2U(TMB)	IU(TMB)	NGB			0		23.5	22	MOUNTED WITH(TMA)REL
TMC	1/2AK30		72	202					IL(TMC)	GRD			0		23.5	22	MOUNTED WITH(TMD)REL
TMC	1/2AK4	RJ	42	202					1U (TMC)	GRD			0		11.9	11.3	MOUNTED WITH (TN)REL
TMD	1/2AK30		72	202				2U(TMD)	IU(TMD)	NGB			0		23.5	22	MOUNTED WITH(TMC)REL
TN	1/2AK4		42	202					IL(TN)	GRD			0		23.5	22	MOUNTED WITH(TMC)REL
TN1	U1413	VH	35	139/139	H	59		1OBF(TN1) 1OBF(TN1)	1OTF(TN1) 11TR(TN1)	B/G B/G		P S	0 0		38.8 38.8	37 37	
TN2	U1413	VH	35	139/139	H	59		1OBF(TN1) 1OBF(TN1)	1OTF(TN2) 11TR(TN2)	B/G B/G		P S	0 0		38.8 38.8	37 37	
TN3	U1413	VH	35	139/139	H	59		1OBF(TN1) 1OBF(TN1)	1OTF(TN3) 11TR(TN3)	B/G B/G		P S	0 0		38.8 38.8	37 37	
TNA	AJ51		42	411			8(TNA),3(TN)		U(TNA)	GRD			0		51	48.5	
TNB	AJ51		42	411			2(TNB),(TN)O		U(TNB)	GRD			0		51	48.5	
TNC	AF50		42	18					U(TNC)	GRD			0		23.5	22	
TP1	AK30	UL	44	202					2L(TP1)	GRD			0		27.7	26	MOUNTED WITH (TP2)REL
TP2	AK30	UL	44	202					2U(TP2)	GRD			0		27.7	26	MOUNTED WITH (TP1)REL
TR	U258		3	118/118	H	50	(C)NO		T(TR)	GRD			0		11.5	10.9	
TR3	U236		21	112/112	H	29			T(TR3)	GRD			0		9.1	8.6	
TR3	U236		39	112/112	H	29			T(TR3)	GRD			0		9.1	8.6	
TR4A	U177	VJ	35	139/139	H	59			T(TR4A)	GRD			0		18.9	18	
TR4B	U177	VJ	35	139/139	H	59			T(TR4B)	GRD			0		18.9	18	
TR4C	U177	VJ	35	139/139	H	59			T(TR4C)	GRD			0		18.9	18	
TR5	U189	VJ	35	148/148	H	47			T(TR5)	GRD			0		10.1	9.6	
TRA	U1131		35	221/139	H	62	(TRA1)NO		T(TRA)	GRD			0		15.5	14.6	
TRA1	U1131		35	221/139	H	62	(TRA2)NO		T(TRA1)	GRD			0		15.5	14.6	
TRA2	U1131		35	221/139	H	62			T(TRA2)	GRD			0		15.5	14.6	
TRN	U189	VH	35	148/148	H	47			T(TRN)	GRD			0		10.1	9.6	
TRO	AJ54		41	306					U(TRO)	GRD			0		38	36	
TRS	AK30	UK	46	202					2U(TRS)	GRD			0		23.5	22	MOUNTED WITH (STR) REL
TSC	AJ14		44	250					2U(TSC)	GRD		P	0		22.5	21	
TSU	1/2AK6		44	2					1L(TSU)	GRD			0		29	27.5	MOUNTED WITH (HTR)REL
TT	U333	WA	32	150/150	H	50							0		15.5	14.4	WDG ALONE
									T(TT)	GRD	1		0		26.5	24.5	
TT1	U1261	WA	32	150/117	H	50							0		13.3	12.6	WDG ALONE
									T(TT1)	GRD	1		0		40.5	38.5	
TT2	U1261	VE	32	150/117	H	50			T(TT2)	GRD			0		13.2	12.6	
TT3	U236		20	112/112	H	29			T(TT3)	GRD			0		9.1	8.6	
TTA	1/2AK6		42	2					1L(TT3)	GRD			0		29	27.5	MOUNTED WITH (WN)REL
TTM	AJ28		43	257					1U(TTM)	GRD		P	0		23.5	22	
								2L(TTM)	2U(TTM)	B/G		S	0		12.4	11.8	
TU1	1/2AK6	PX	13	2					1U(TU1)	GRD			0		29.0	27.5	MOUNTED WITH (60G) REL

TEST NOTES:

1. COMBINATION OF (TT) AND (TT1) RELAYS.

DRAWING ISSUE: 45D, 47D, 49D, 56A, 60D

ISSUE 68-B

AUTOMATIC TEST CIRCUIT (2)

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S

SD-25161-01-F6

PRINTED IN U.S.A.

CIRCUIT REQUIREMENTS

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPTION	APP FIG	MECH REQT BSP FIG	MECH REQT CONT PRESS.	MECH REQT ARM TRVL.	CIRCUIT PREPARATION BLOCK OR INSULATE	CIRCUIT PREPARATION TEST CLIP DATA CONN BAT.	CIRCUIT PREPARATION TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	DIRECT CURRENT FLOW REQT TEST FOR	DIRECT CURRENT FLOW REQT AFTER SOAK MA.	DIRECT CURRENT FLOW REQT TEST MA.	DIRECT CURRENT FLOW REQT READJ MA.	REMARKS
TY1	U1323		61	118/108	H	50			1(TY1)	GRD			0		13	12.3	
TY2	U1323		61	118/108	H	50			T(TY2)	GRD			0		13	12.3	
TYS	U254	WG	38	108/108	H	47			T(TYS)	GRD			0		17.5	16.5	
U	U1414		13	202/161	H	71	3T(TU)		T(U)	GRD			0		38.5	37	
V	U1025		32	163/150	H	59			T(V)	GRD			0		31	29.5	
VA	U1063		32	151/151	H	41			T(VA)	GRD			0		9.2	8.7	
VB	U1063	WA	32	151/151	H	41			T(VB)	GRD			0		9.2	8.7	
VC	U542	WA	32	108/132	H	47			T(VC)	GRD			0		8.6	8.1	
VCS	AK30		51	202					IL(VCS)	GRD			0		23.5	22	
VD	U1318	WA	32	160/132	H	47			T(VD)	GRD			0		9.4	8.9	
VE	U542	WA	32	108/132	H	47			T(VE)	GPD			0		8.6	8.1	
VF	U1318	WA	32	160/132	H	47			T(VF)	GRD			0		9.4	8.9	
VNL	U611		36	139/139	H	59			T(VNL)	GRD			0		30	28.5	
VT	U422		3	132/101	H	47			T(VT)	GRD			0		14.7	14	
W	U140		5	153/118	H	53							0		24	22.5	REL ALONE
							3T(Z) (Z)NO		T(W)	GRD			0		46	43.5	COMB. OF (Z) AND (W) REL
WC	U497		31	132/106	H	47							0		24	22.5	REL ALONE
							3B(ZC) (ZC)NO		T(WC)	GRD			0		50	47.5	COMB. OF (ZC) AND (WC) REL
WK	U53	RB	14	118/145	H	50			T(WK)	GRD			0		10.2	9.7	
WK	1/2AK4	RC	14	202					1U(WK)	GRD			0		11.9	11.3	MOUNTED WITH (DPL) REL
WN	1/2AK6		42	2					1U(WN)	GRD			0		29	27.5	MOUNTED WITH (IT3) REL
WR	U521		18	108/108	H	47			T(WR)	GRD			0		21.5	20.5	
XB	U333		5	150/150	H	50			T(XB)	GRD			0		16.5	15.5	
	U352		5	108/108	H	47							0		13.3	12.6	WDG ALONE
							3T(W) (W)NO		T(Z)	GRD			0		33	31	COMB. OF (Z) AND (W) REL
ZC	U490		31	132/132	H	47							0		17.5	16.5	REL ALONE
							3B(WC) (WC)NO		T(ZC)	GRD			0		37.5	35.7	COMB. OF (ZC) AND (WC) REL
ZO	U480		5	132/111	H	47			T(ZO)	GRD			0		17.5	16.5	
DIODES														MAXIMUM VOLTAGE			
SBT	446F		46						U(SBT)	GRD	1,2				1		

TEST NOTES:

1. REFER TO BSP SECTION 032-173-301 FOR TEST PROCEDURE.
2. USE BSP TEST PROCEDURE NO. 1.

DRAWING ISSUE: 36D, 45D, 52D, 55D, 60D, 61D

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AUTOMATIC TEST CIRCUIT	SD-25161-01-F7
BELL TELEPHONE LABORATORIES INCORPORATED	

TIMING REQUIREMENTS

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPTION	APP FIG	MECH REQT BSP FIG	MECH REQT CONT PRESS	MECH REQT ARM TRVL.	CIRCUIT PREPARATION BLOCK OR INSULATE	CIRCUIT PREPARATION TEST CLIP DATA CONN BAT.	CIRCUIT PREPARATION TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	DIRECT CURRENT FLOW REQT TEST FOR	DIRECT CURRENT FLOW REQT AFTER SOAK MA.	DIRECT CURRENT FLOW REQT TEST MA.	DIRECT CURRENT FLOW REQT READJ MA.	REMARKS
				PULSE CYCLE & BREAK		PULSE SPEED											
				FRONT CONT	BACK CONT												
				MIN MAX	TEST READ	MIN MAX		CONN. T	CONN. R								
CKP	280AR				39 39	9.5 10.5		(CKP)JK T	(CKP)1K S		1,2						DIAL PULSING LPD
					±2 ±0.25												TEST LRD
		59.5 67.5				9.5 10.5		(CKP)JK T	(CKP)JK R		1,2						TEST
								(CKP)JK T	(CKP)JK R		2,3						DIAL PULSING BGD TEST
P	280AR				39 39	9.8 10.5		(P)JK T	(P)JK S		1,2						DIAL PULSING LPD
					±2 ±0.25												TEST, LRD TEST
		59.5 67.5				9.5 10.5		(P)JK T	(P)JK R		1,2						
								(P)JK T	(P)JK R		2,3						DIAL PULSING BGD TEST
PGA	U298			SEE PAGE 16 FIG. A				5B(RB)	1B(KP)		2,4						MF PULSING TEST
PGA	U298			SEE PAGE 16 FIG. B				5B(RB)	1B(KP)		2,5						KP SIGNAL TEST
PLS	U6034			SEE PAGE 16				5T(BGD)	3B(BGD)		2,3						DIAL PULSING TEST

TEST NOTES:

1. BLOCK OPERATED RELS, (LPD), (DP1), (C3) AND (SG).
2. SEE PAGE 16 FOR PROCEDURE.
3. BLOCK NON-OPERATED REL (ON) AND BLOCK OPERATED RELS (BGD), (DP1), (C3) & (SG).
4. BLOCK NON-OPERATED REL (KP) AND BLOCK OPERATED RELS (MF1), (C3), (SG).
5. INSULATE 4B & 8B (KP) AND BLOCK OPERATED RELS (KP), (MF1), (C3), AND (SG).

DRAWING ISSUE: 36D, 45D, 52D, 55D, 60D, 61D

PAGE 14

AUTOMATIC TEST CIRCUIT (2)	SD-25161-01-F7 ISSUE 63B
BELL TELEPHONE LABORATORIES INCORPORATED	SIZE 6S

TIMING REQUIREMENTS

APPLY AFTER TURNOVER ONLY

APPARATUS			CIRCUIT PREPARATION	TEST CLIP DATA			TEST SET PREP			SEE NOTE	TIME REQ MIL-SEC		REMARKS
DESIG	FEATURE OR OPTION	FIG.	BLOCK OR INSULATE	CO[illegible]	CONN R	CONN W	SEND KEY	REC SW START	REC SW STOP		MIN	MAX	
RELAYS													
CTT	XR	28		GRD	3T(2W)	2T(CTT)	MK	-48V	GRD	1,2,3	1000	1420	
			(2WR)O	GRD	3T(2W)	2T(CTT)	MK	-48V	GRD	1,2,3	2300	3840	
CTT	OQ	41	(EAS)O	GRD	12T(BTG)	11T(DT2)	MK	OC	GRD	2,13,26	100	105	
			(SAI)O	GRD	12T(BTG)	11T(DT2)	MK	OC	GRD	2,13,27	1000	1050	
CTT	VA,VB	28		GRD	12T(BTG)	11T(DT2)	MK	OC	GRD	2,13,14	700	750	FOR FIG. 41 ONLY
				GRD	12T(BTG)	5B(SDC)	MK		GRD	2,13,15,21	1350	1450	
CTT	XS	28		GRD	4T(SIT)	2T(CTT)	MK	-48V	GRD	2,4,5	1050	1150	
FS1		32	2B(FS2) (TCT1)O	GRD	6B(TCT1)	1B(TFT)	BK	48V	OC	2,9,10	100	150	
FS2		32	2T(FS1), (TCT1)O, (TDT)O, (TDT1)O	GRD	5B(TCT1)	1B(TFT)	BK	48V	OC	2,9,10	100	150	
MV		32	(RS)NO (AL1)NO	GRD	T(STV)	3B(M1)	MK	GRD	48V OR OC	2,7,11,12	1850	2700	
			3B(AL1)	GRD	T(STV)	3B(M1)	MK	GRD	48V OR OC	2,8,11,12	1200	1800	FOR WA OPTION
				GRD	T(STV)	3B(M2)	MK	GRD	48V OR OC	7,11,12,16	150	225	
				GRD	T(STV)	3B(M2)	MK	GRD	48V OR OC	8,11,12,16	2300	3500	FOR WA OPTION
				GRD	T(STV)	1B(M1)	MK	GRD	48V OR OC	7,11,12	2000	3000	
				GRD	T(STV)	1B(M1)	MK	GRD	48V OR OC	2,8,11,12	450	700	FOR WA OPTION
				GRD	T(STV)	1B(M2)	MK	GRD	48V OR OC	7,11,12,16	150	225	
				GRD	T(STV)	1B(M2)	MK	GRD	48V OR OC	8,11,12,16	300	600	FOR WA OPTION
				GRD	T(STV)	6B(M3)	MK	GRD	48V OR OC	7,11,17	2000	3000	
				GRD	T(STV)	6B(M3)	MK	GRD	48V OR OC	8,11,17	4500	6000	FOR WA OPTION
				GRD	T(STV)	6B(M3)	MK	GRD	48V OR OC	2,6,8,11,17	8000	10,000	FOR WA OPTION
				GRD	T(STV)	6B(M3)	MK	GRD	48V OR OC	8,11,17,22,23	6000	7000	FOR WA OPTION & APP FIG. 51
				GRD	T(STV)	3B(M2)	MK	GRD	48V OR OC	11,16,22	150	225	FOR WA OPTION & APP FIG. 51
SY		6		GRD	6T(PH)	6T(AV2)	MK	OC	48V	2,24	800	1000	
TTM		43	(TNA)O (TNB)O							18,25	11.5 SEC	12.5 SEC	START TIMING BY OPERATING RELAY (AA) OR RELAY (SP4A)
		43	(TN)O, (TNA)O	GRD	U(AA) OR U(SP4A)	5M(TTM)	MK	OC	GRD	2,19	5750	6250	
	46	43	7B,5B (IC), (IDT)O	GRD	U(IDS)	5M(TTM)	MK	OC	GRD	2,20	5750	6250	

TEST NOTES:

1. OPERATE (CTT) KEY.
2. USE TEST SET J24753
3. ~~TUBE IN "XN" OPTION SHOULD BE TESTED IN REVERSE DIRECTION, WITH TUBE TESTER SD-9[illegible] USE TEST [illegible], REVERSING CONNECTIONS TO STARTER ANODE AND CATHODE.~~
4. VARY THE (2W8) POT. TO MEET TIME REQUIREMENT.
5. SEE GRAPH OF TIME VS VOLTAGE, FIG. D.
6. BLOCK RELAY (VF) OPERATED AND INSULATE 3T, 4T (M3) RELAY.
7. RELAYS (TT) AND (TT1) NON OPERATED.
8. RELAYS (TT) AND (TT1) OPERATED.
9. CONNECT DIRECT GRD TO 9B(TCT) AND 1T(TT) RELAYS.
10. INCLUDES OPERATE TIME OF (FT) RELAY.
11. OPERATE (ON1) AND (ON2) RELAYS ELECTRICALLY. RELEASE MOMENTARILY AFTER EACH TEST.
12. TIMING TESTS ARE FOR TUBES (V1) AND V2) AND RELAY (MV).
13. ~~GRD 12T(DT2)~~. CONNECT JUMPER FROM 1B(BTG) TO 12T(DTC).
14. VARY THE 2W6 POT. TO MEET TIME REQUIREMENT.
15. VARY THE 2W5 POT. TO MEET TIME REQUIREMENT.
16. OPERATE (RN) KEY AND BLOCK RELAY (C) OR RELAY (C3) OPERATED.
17. THE METER WILL NOT COME TO A COMPLETE STOP BUT MUST BE READ AT FIRST MOMENTARY STOP. NOTE 12 ALSO APPLIES HERE.
18. VARY THE TT6 POT. TO MEET TIME REQUIREMENT.
19. VARY THE TT5 POT. TO MEET TIME REQUIREMENT.
20. VARY THE ID1 POT. TO MEET TIME REQUIREMENT.
21. WHEN "UF" OPTION IS PROVIDED, SET "REC SW-START" TO -48V. WHEN "UF" OPTION IS NOT PROVIDED, SET "REC SW-START" TO OC.
22. BLOCK RELAYS OWM & OWM1 OPERATED.
23. WHEN MEASURED TIME IS LESS THAN 6 SEC. CUT STRAP ON RESISTOR G12. WHEN MEASURED TIME IS MORE THAN 7 SEC. ADD STRAP ON RESISTOR G12.
24. OPERATE (CA) KEY AND BLOCK RELAYS (C) AND (SP2) OR RELAYS (C4) AND (SP4) OPERATED.
25. USE STOP WATCH. MEASURE TIME UNTIL RELAY (TTM) OPERATES.
26. VARY THE (2W7) POT. TO MEET TIME REQUIREMENT.
27. VARY THE (2W8) POT. TO MEET TIME REQUIREMENT.

AUTOMATIC TEST CIRCUIT | SD-25161-01-F8

BELL TELEPHONE LABORATORIES INCORPORATED

FIG. A
MF PULSING
SEE PROCEDURE A AND B

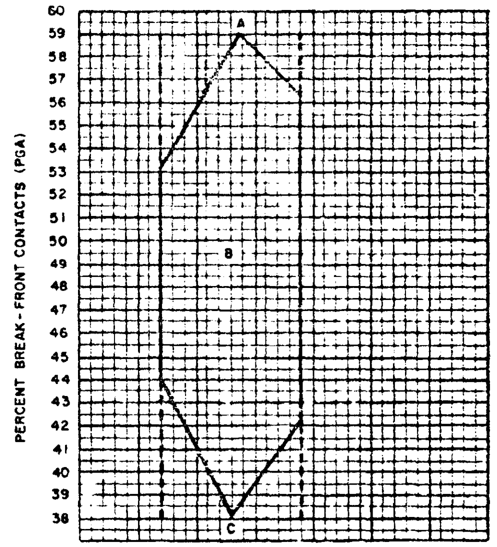


FIG. B
KP SIGNAL
SEE PROCEDURE C

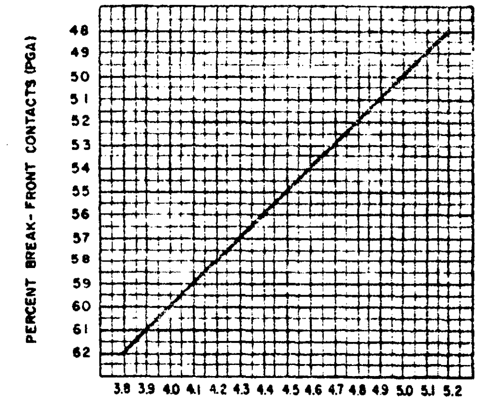


FIG. C
BGD PULSING
SEE PROCEDURE D, E AND F

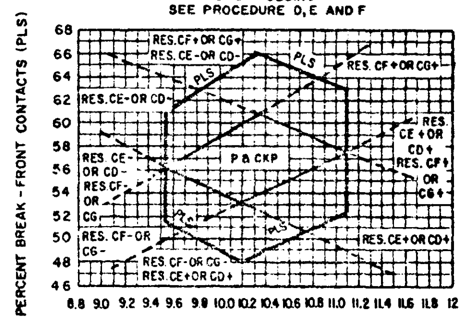
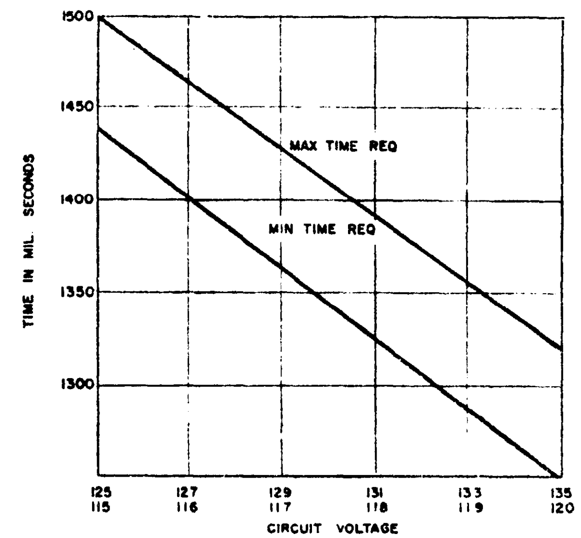


FIG. D
ADJUSTMENT OF TE & BCR TIMER



PROCEDURE - FIG. A

(A) ADJUST (P), (CKP), (PG), (PLS) AND (PGA) RELAYS TO CURRENT FLOW REQUIREMENTS.

(B) ADJUST THE MF PULSING CONDITION FOR SPEED AND % BREAK. IF THE POINT OF INTERSECTION OF THE "% BREAK" AND "PULSES PER SEC" FALLS WITHIN AREA B OF FIG. A, THE INTERRUPTER IS SATISFACTORY. IF READJUSTMENT IS NECESSARY AIM AT THE CENTER OF AREA B WHEN CONNECTING TAPS. IF THE INTERSECTION FALLS IN EITHER AREA A OR C THE % BREAK MUST BE CHANGED BY SHIFTING THE TAP 1, WHICH IS OPTIONALLY CONNECTED TO THE MF NETWORK RESISTANCES IN APP FIG. 17. TO INCREASE THE % BREAK THE TAP 1 SHOULD BE SWITCHED TO ONE OF POINTS 2,3,4,5 OR 6 IN THIS ORDER. TO DECREASE THE % BREAK THE TAP 1 SHOULD BE SWITCHED TO ONE OF THESE SAME POINTS IN THE REVERSE ORDER. POINT 4 ORDINARILY SHOULD BE SATISFACTORY. IF INSUFFICIENT RANGE IS ENCOUNTERED THE (PGA) RELAY IS PROBABLY OUT OF ADJUSTMENT.

PROCEDURE - FIG. B

(C) CHECK THE K.P. SIGNAL FOR SPEED AND % BREAK. THE POINT OF INTERSECTION OF THE "% BREAK" AND "PULSES PER SECOND" SHOULD FALL ON OR ABOVE THE K.P. SIGNAL CURVE OF FIG. B.

PROCEDURE - FIG. C

(D) ADJUST THE BGD DIAL CONDITION FOR SPEED AND % BREAK. IF THE POINT OF INTERSECTION OF THE "PULSES PER SECOND" AND "% BREAK" FALLS WITHIN THE TOTAL AREA BOUNDED BY THE SOLID LINES THE CONDITION IS SATISFACTORY. IF THE POINT FALLS WITHIN AN AREA BOUNDED BY THE DASHED LINES OUTSIDE OF THE ABOVE AREA, INCREASE OR DECREASE THE ADJUSTABLE RESISTANCES AS INDICATED BY THE + OR - SIGNS FOLLOWING THE LETTER WITHIN THAT AREA. THE LETTERS INDICATE THE DESIGNATION OF THE RESISTANCES IN APP FIG. 19.

(E) ADJUST LPD AND LRD DIAL CONDITION FOR SPEED AND % BREAK OF BACK CONTACT THE % BREAK CAN BE VARIED BY ADDING OR REMOVING THE OPTIONAL STRAPS ON THE (LPD) AND (LRC) NETWORK RESISTANCES IN APP FIG. 18. THE VALUES OF THESE RESISTANCES ARE SO CHOSEN THAT STEPS OF 10 OHMS MAY BE OBTAINED. INCREASING THE RESISTANCE OF THE NETWORK INCREASES THE % BREAK AND VICE VERSA.

(F) CHECK LPD AND LRD DIAL CONDITION FOR SPEED AND % BREAK OF FRONT CONTACT. THESE REQUIREMENTS SHOULD BE MET AUTOMATICALLY AS A RESULT OF THE ADJUSTMENT UNDER (E) ABOVE.

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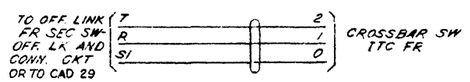
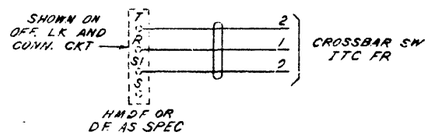
BELL TELEPHONE LABORATORIES INCORPORATED

DRAWING ISSUE	
36D	TYC NM1
58D	

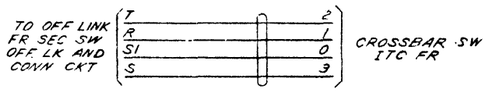
CAD. 1
(FOR APP FIG. 1)



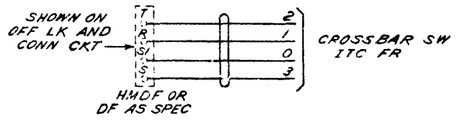
CAD. 2 (A&M ONLY)
(FOR APP FIG. 1)



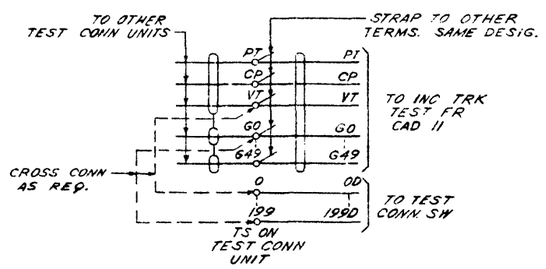
CAD. 3
(FOR APP FIG. 22)



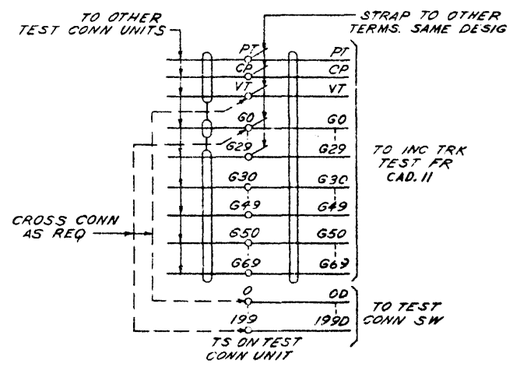
CAD. 4 (MFR DISC.)
(FOR APP FIG. 22)



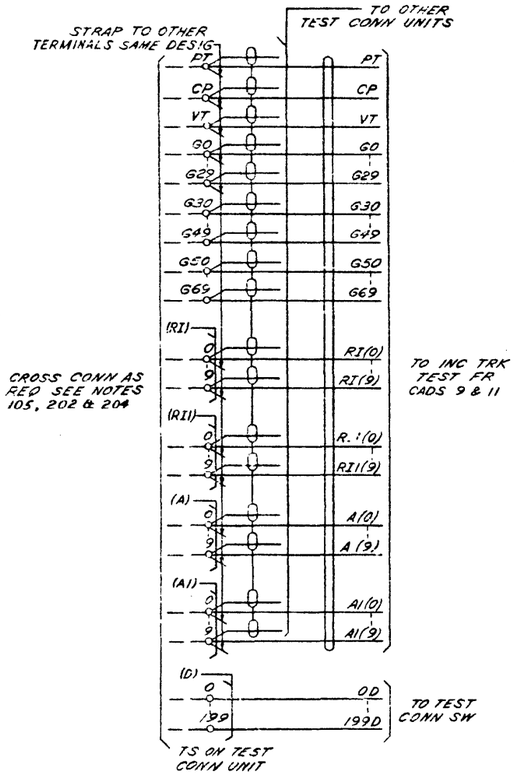
CAD. 5 (MFR DISC.)
(FOR PART OF APP FIG. 4)



CAD. 6 (A&M ONLY)
(FOR PART OF APP FIG. 4)



CAD. 7 (A&M ONLY)
(FOR PART OF APP FIG. 4)



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AUTOMATIC TEST CIRCUIT (2)

BELL TELEPHONE LABORATORIES INCORPORATED

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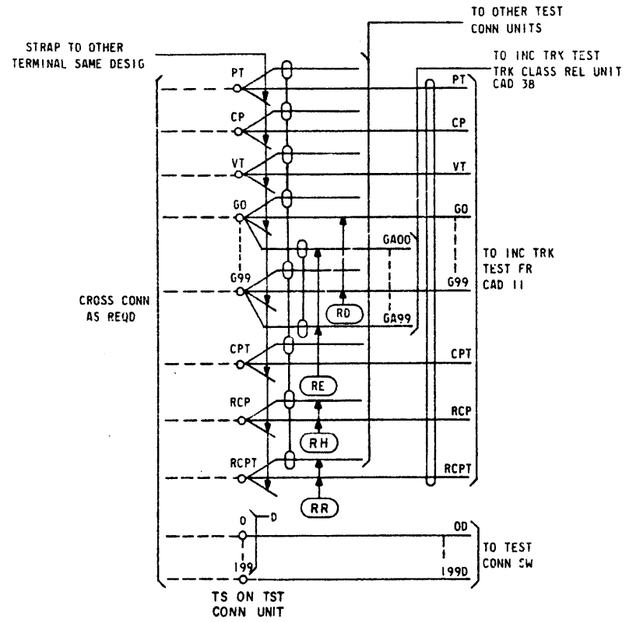
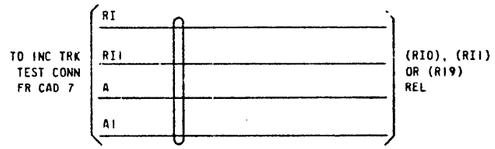
CAD 8

(FOR APP FIG 1,3,9,11,22 & 26)
(A & M ONLY FOR CSBR TDM)



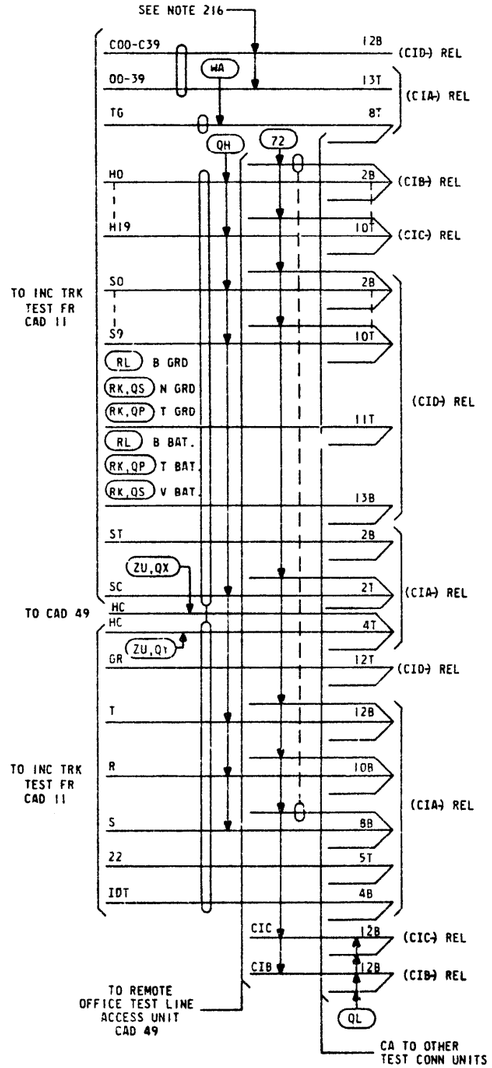
CAD 9 (A & M ONLY)

(FOR APP FIG 8)



CAD 10

(FOR APP FIG. 1&2 OR 2&22)
(A & M ONLY FOR CSBR TDM)



DRAWING ISSUE 61D

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AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-G2A

BELL TELEPHONE LABORATORIES INCORPORATED

6S

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CAD 11

(FOR APP FIG. 3,4,9,26,28,52,53,72 & B)

TO CAD 49 CP

TO INC TRK TEST TRK CLASS REL UNIT CAD 38

RD RE 52,53 11,26

CPT (CPT) REL
VT (VT) REL
PT
CP (CP) KEY
G0
GB0
GB49
G49
G50 (11,52) (26,53) (G) OR (DM) REL
GB50
GB69
G69
G70
GB70
GB99
G99

TO TEST CONN UNIT ON ITC FR CAD 5,6,7, AND 8 OR TO FR TS ON ITC FR CAD 26

C0 (G3) AND (G4) SEL
C19
C20 (GA3) AND (GA4) REL
C39

TO TEST CONN UNIT ON ITC FR CAD 10 OR CAD 26 (SEE NOTE 216)

0 (G5) AND (G6) SEL
19
20 (GA5) AND (GA6) SEL
39

QH
H0 (H5) AND (H6) SEL
H19
S0 (S3) SEL
S9

TO TEST CONN UNIT ON ITC FR CAD 10 OR TO FR TS ON ITC FR CAD 26

TO CAD 37
TO CAD 47 OR
72 TO CAD 49

UX
TO MF SIG GEN GS GS1 (MF1) REL
46
TO CAD 23
TO (TA) LAMP FOR IT TEST FR AT OTHER TEST FRAMES 1 2 (TBL) REL

TO OFFICE INT FRAMES
(A) INT (NO) REL
(B) INT (C) CAP. (RP3) REL (RP4) REL
(C) INT (XB) REL (SYI) REL
(DL) INT (DL) REL (RF) REL (DLI) REL
(OFL) INT (RO) REL
(PC) INT (GR) REL (H-PCR) KEY
XY XX
(TA) INT (TBL) REL
XY (CP3) REL
(TAI) INT

TO CAD 49 TA TS ON TEST FR

TO MF SIG GEN
CUT AND TAPE AT REAR OF TS
TO T R T1 R1 T2 R2 T4 R4 T7 R7 T10 R10 P
TO T R T1 T2 T4 T7 T10 B
(DC7) REL
(DC8) REL
(DC9) REL
(DC6) REL
(STC) REL

TO MF CURRENT SUPPLY

TO CAD 50 +130V(J)
TO FUSE BAY +130V(J) (RF2) REL

TO FL ALM FR ON FL ALM UNIT TA AG (FL1) REL

TO (C) JK INC TRK FR RC (REP) KEY
TO MISC CKT FOR MISC RR & MISC CKT FOR TDM TRK FR RC WD WD

TO CAD 23 46
TO TEST CONN UNIT ON ITC FR CAD 10 OR TO FR TS ON ITC FR CAD 26
22 GR ST QH 72 SC HC
(GR) REL
(TC) REL
ZU,QY (S) REL
(H) REL
ZU,QX

TO CAD 49 HC SC

T R S (TR) REL (CTT) REL (PT) REL
PROVIDE STRAPS WHEN TONE DETECTOR IS NOT FURNISHED

TO TEST CONN UNIT ON ITC FR CAD 10 OR TO FR TS ON ITC FR CAD 26 R T S R1 T1 S1

TO CAD 49
TO CAD 23 WHEN TONE DETECTOR IS FURNISHED

QM QS
TO CAD 47 ST (BY) REL
TO CAD 49 BY TR BY1 CBY (TR) REL (BY1) REL (CBY) LP
TO CAD 50 RPT BPT (RPT) LP (BPT) LP

TO TEST CONN UNIT ON ITC FR CAD 8 OR TO CAD 28 RCP RCPT RH RR (RCP) REL
RR QK

TO TEST CONN UNIT ON ITC FR CAD 10 OR TO FR TS ON ITC FR CAD 26
RK,QS N GRD RL B GRD FUSE PANEL ON TEST FR
IDT (IDT) KEY
RK,QS V BAT. RL B BAT. FUSE PANEL ON TEST FR
49
WA
TG (TR & N) KEY
TO CAD 26
TO CAD 49 ICR (ICR) LP OR LED

TS ON TEST FR

TO CAD 49
ICRL (G) SEL ARCS
ICRLI (ST) REL

TO INC TRK TEST TRK CLASS REL UNIT CAD 38
OI9 OI1 OI0 (FIV) REL

TO INC TRK TEST TRK CLASS REL UNIT CAD 38 OR 38A FIV

NSA (NSA) REL
TRD TRE TRF TRG (NSTC) REL
BLD BLE BLF BLG (NSC) REL
QE
TLD TLE TLF TLG

TO NON-STD CODE GROUP UNIT CAD 39

PCD PBD PAD (CDG) REL (BDG) REL (ADG) REL OR (NI2) REL
7DG (7DG) REL

TO 7 DIGIT OFFICE CODE UNIT CAD 41

PM
TO INC TRK TEST TRK CLASS REL UNIT CAD 38A HFV (HFV) REL

BAT R
R GRD
TO 7 DIGIT OFFICE CODE UNIT CAD 41

TO INC TRK TEST TRK CLASS REL UNIT CAD 38 OR 38A R GRD
TO CAD 40 R GRD

W GRD
TO PCI OUTPULSER UNIT CAD 42
BAT. W

FR FUSE PANEL

TS ON TEST FR

TO CAD 10 T GRD T BAT. TG
WA RK,QP
RUN ONCE PER ITC FR
FUSE PANEL ON TEST FR
(TR & N) KEY

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AUTOMATIC TEST CIRCUIT 2

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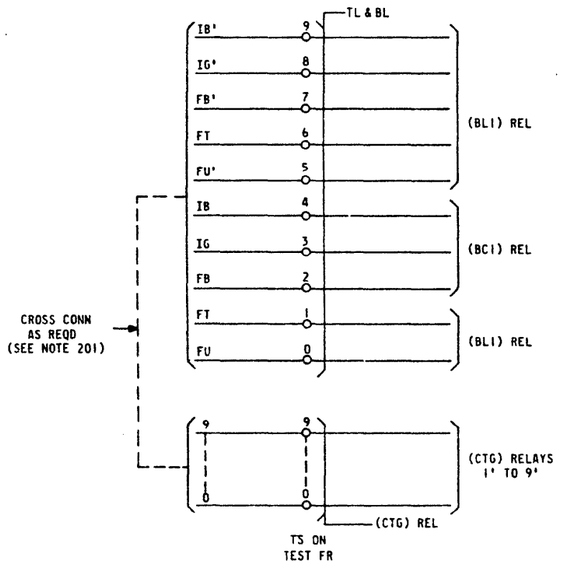
BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-G2B

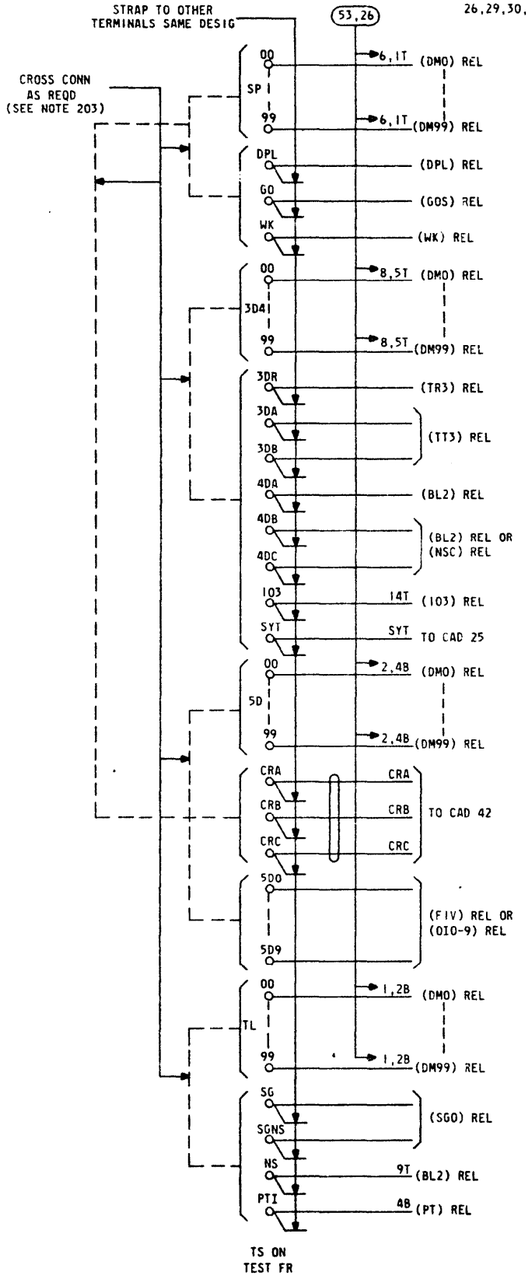
CAD 13 (MFR DISC.)

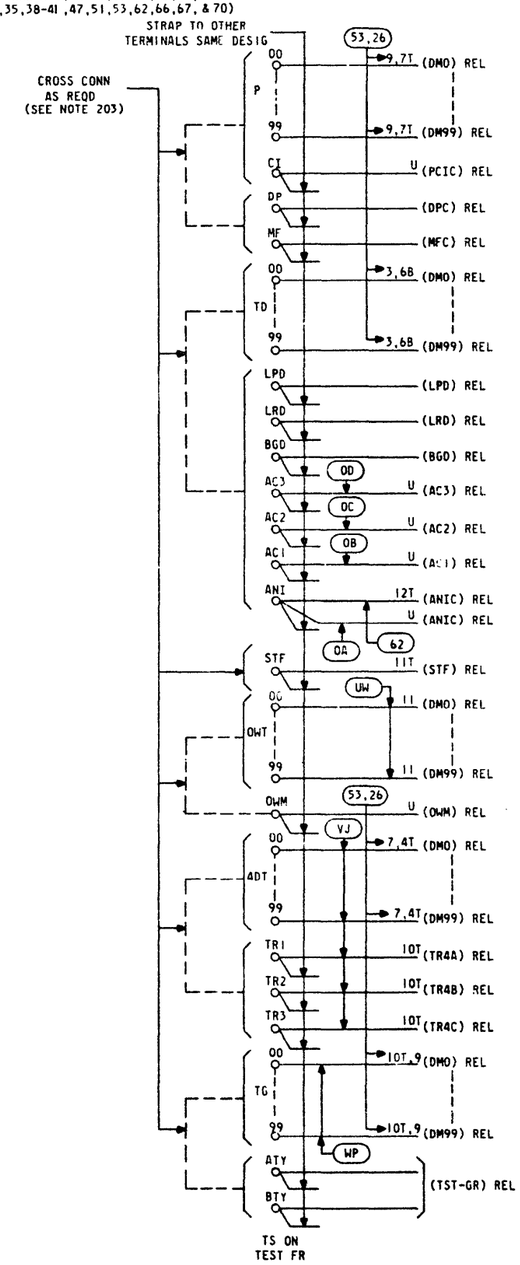
(FOR APP FIG. 5)



PART OF CAD 14

(FOR APP FIGURES 9,12-15,17-20,23,24, 26,29,30,35,38-41,47,51,53,62,66,67, & 70)

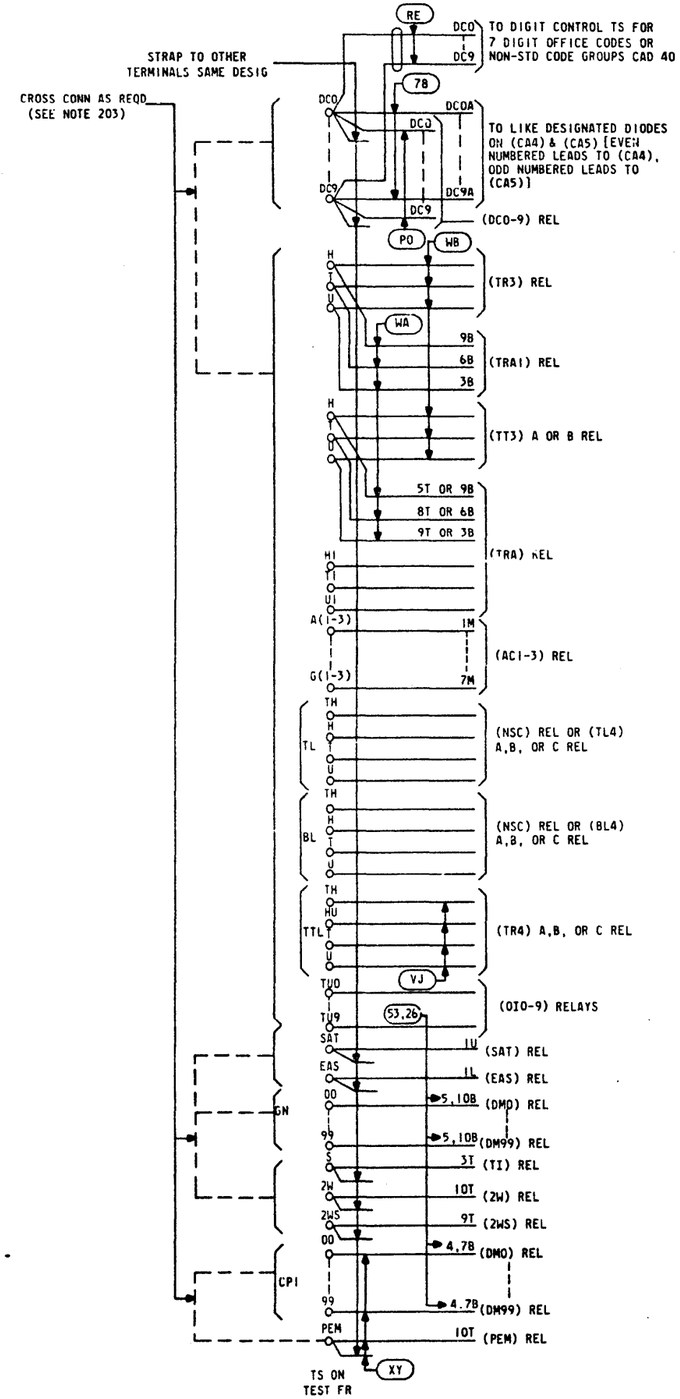




AUTOMATIC TEST CIRCUIT		DWG SIZE 6S	ISSUE 68B
BELL LABORATORIES	SD-25161-01-		G3A

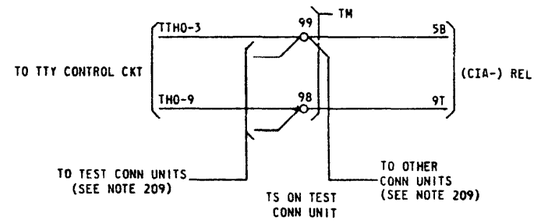
PART OF CAD 14

(FOR APP FIGURES 9,12-15,17-20,23,24,26,29, 30,35,38-41,47,51,53,62,66,67, & 70)



CAD 15

(FOR APP FIG. 37)
(ONE PER TEST CONN UNIT IN CROSSBAR TANDEM SEE NOTE 212)



AUTOMATIC TEST CIRCUIT		DWG SIZE 6S	ISSUE 68B
BELL LABORATORIES	SD-25161-01-		G3B

CAD. 17

(FOR APP FIGS. 3,12,32,35,36,38)

TL 00 (TL1) RES
TD 01 (MT) CAP
GT 02 (TT1) REL
OWS 03
MV1 04 (M4) REL
MV2 05
ADIO 06 (51) (VCS) OR (M4A) REL
REC 07 (M4A) REL
TTF 08 (V) REL
TTR 09
PL 10 (DR-1 IW) KEY
RD 11 (RLI) FLS
VF 12 (MR) CAP
KSE 13 (51) (OWM) OR (VF) REL
E (PJ) 14 (51) (OWM) REL OR (TRANS) KEY
ALM 15 (VNL) REL
DV1 16 (PAS) REL
DV2 17 (TY1) REL
NA 18 (TY2) REL
NB 19 (BY1) REL
NA 1B
NB 19 1B
SND 20 (DR-2 1W) KEY
VDM 21 (51) (OWM) OR (RS) REL
C 22 (VD) REL
STV 23 (TT) REL
24 (ALM) REL
25 (51) (OWM) OR (TTI) REL
26 (OWM) REL
27 (TR) (FAS) REL OR (TS) (CFB) KEY
28
29

PH W5 PH W5

TO AUTO TRANSMISSION TEST AND CONTROL CKT

TO AUX CKT AND NIGHT ALM CKT ON TOLL TEST BD

TO AUTO TRANSMISSION TEST AND CONTROL CKT

TO AUTO TRANS TEST AND CONT CKT

TO MW DIST CKT WHEN REQUIRED

TO AUTO. TRANSMISSION TEST AND CONTROL CKT

ST

(TRANS) TS ON FR

DA1 107
DA2 108
DA3 109
DA4 111
113
114
115 5T (HAD) REL
116 (A) OR (OB) LAMP
117 (B) OR (OG) LAMP
1A
3A (BL/BC) KEY
3C
10T (CP3) REL
11T
11B (OWM1) REL
11M
12B
123
125
128
129

(CFB) KEY

TO TTY CONT

(TRANS) TS ON FR

FOR CONNECTIONS TO THESE TERMINALS SEE SD-68446-01

110 112 120 122 130 132 140 142 150 152 133 135 138 139 143 145 148 149 153 155 158 159

(TRANS) TS ON FR

CAD. 18

(FOR APP FIGS. 3,5,6,9, 16,25,32,33,34,36,39,& 41) (CROSSBAR TANDEM)

HU0 30 SELECT LP (0)
HU9 39 SELECT LP (9)
U0 40 HOLD LP (0)
U9 49 HOLD LP (9)
TN0 50 HOLD LP (10)
TN9 59 HOLD LP (19)
BPF 60 (PB) MR
BP 61
PB 62 (PR) REL
BTT 63 (CA3) REL
L-FO 64
L-OPR 65
A-NO 66 (TST) SEL
A-OPR 67
68
OF 69 (OF) LP
KP-TG 70 (KP) OR (TG) LP
DF 71 (FDC) OR (SDC) LP
TU-IB 72 (TU) OR (IB) LP
TH-IG 73 (TH) OR (IG) LP
H-FB 74 (H) OR (FB) LP
T-FT 75 (T) OR (FT) LP
U-FU 76 (U) OR (FU) LP
MO 77 (MO) LP
PS 78 (PS) LP
EP 79 (EPI) REL
TR 80 (TI1) REL
BT 81 (TI) REL
RFI 82 (RFI) LP
RF2 83 (RF2) LP
HIT 84 (HIT) LP
CHT 85 (CHT) LP
SFL 86 (SFL) LP
FSI 87 (FSI) LP
FS2 88 (FS2) LP
ALM 89 (ALM) REL
AL 90 (PRS) REL
PTR 91 (PTR) KEY
TB 92
TBI 93 SO (AAR) KEY OR TL (AST) REL
A 94
HAD 95 (PTR) KEY
U 96 (HAD) REL
UA 97
UB 98
TN 99 (HA) KEY
TNA 100
TNB 101
TIA 102
TIB 103 (TY1) REL
T2A 104
T2B 105 (TY2) REL
XCR 106 (XCR) LAMP

SHOWN ON SD-68456-01

TO TTY CONT CKT

TO CAD 23 TB
TO CAD 23 A

(TRANS) TS ON FR

PROVIDE WHEN AUTO TST OF TRK INDENT IS NOT SPECIFIED

CAD. 19

(FOR APP FIG. 5 & 35)

XIASN RF

IB4 IB4 7T
IG4 IG4 4T
FB4 FB4 1T (TN3) REL
FT4 FT4 7B
FU4 FU4 4B
IB3 IB3 7T
IG3 IG3 4T
FB3 FB3 1T (TN2) REL
FT3 FT3 7B
FU3 FU3 4B
IB2 IB2 7T
IG2 IG2 4T
FB2 FB2 1T (TN1) REL
FT2 FT2 7B
FU2 FU2 4B
IB1 9 TL & BL 4B
IG1 8 1B
FB1 7 1T (BL1) REL
FT1 6 4T
FU1 5 7T
IB 4 8T (BC1) REL
IG 3 5T 6T
FB 2 3B 3T (TN3) REL
FT 1 6T 9B
FU 0 9T 6B (BL1) REL
9 9 A (2'-9') REL COUNTING
2 2 A
1 1 A (1') REL COUNTING
0 0 1
CTG RELAYS

CROSS CONN AS REQD (SEE NOTE 201)

RM 9 2 0 OS

OGS OGS 8
OBS OBS 10 (STL) REL

54 TEST ON TST FR

ISSUE		
36D	YC	TEB
	AAS	
37D	EDM	CB
	AM	
40D	LW	NL
	AND	
41D	CLK	A
	AND	
47D	PEU	CB
	AND	
48A	MK	
	AD	CB
	DFK	
52D	MC	CB
	AD	B
	DFK	
53D	MC	CB
	AD	
54AR	PEU	
	AND	
58D		CB
61D		CB

AUTOMATIC TEST CIRCUIT (2)

BELL TELEPHONE LABORATORIES INCORPORATED

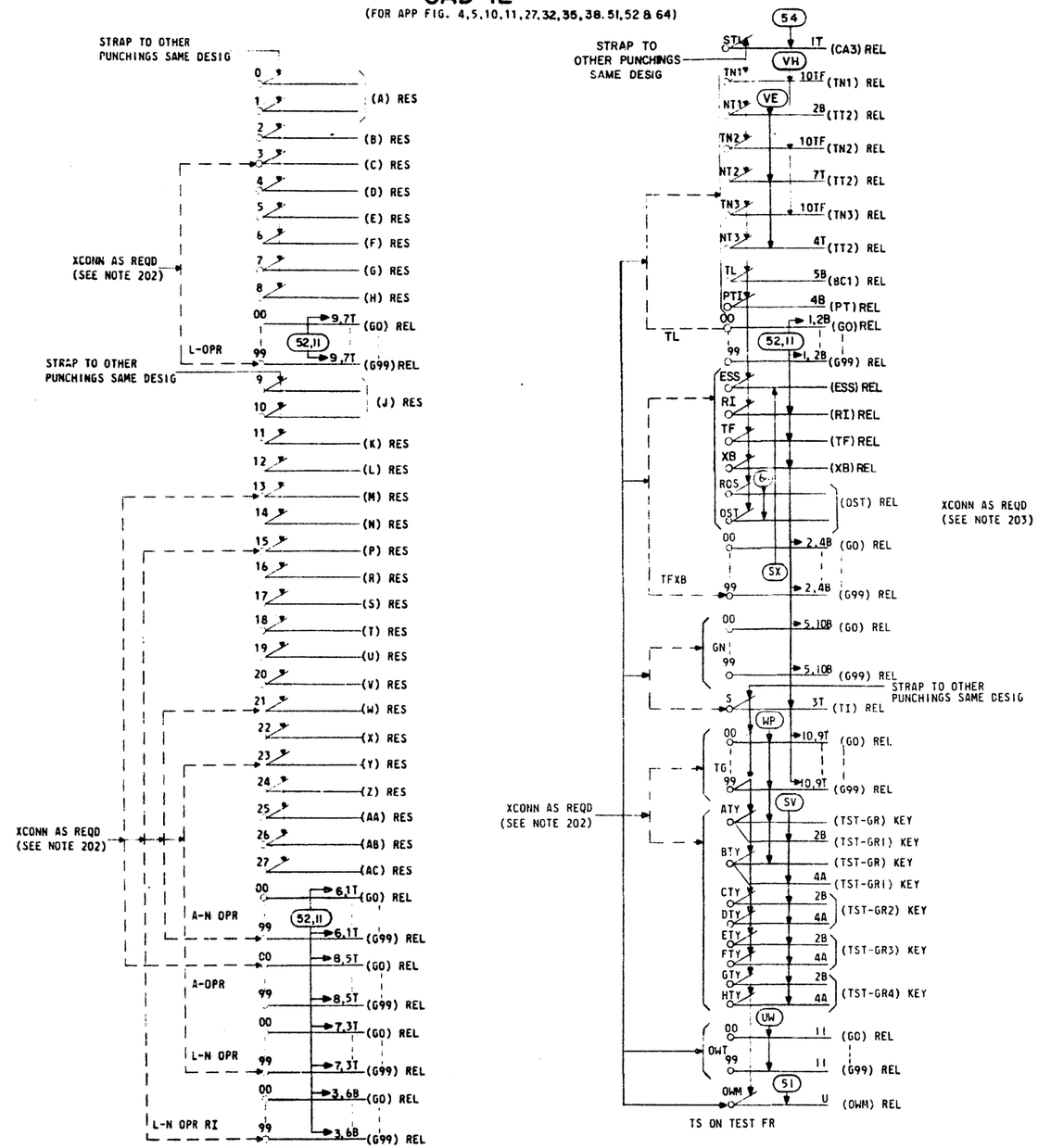
SD-25161-01-G4

ISSUE 67B

SD-25161-01-G4

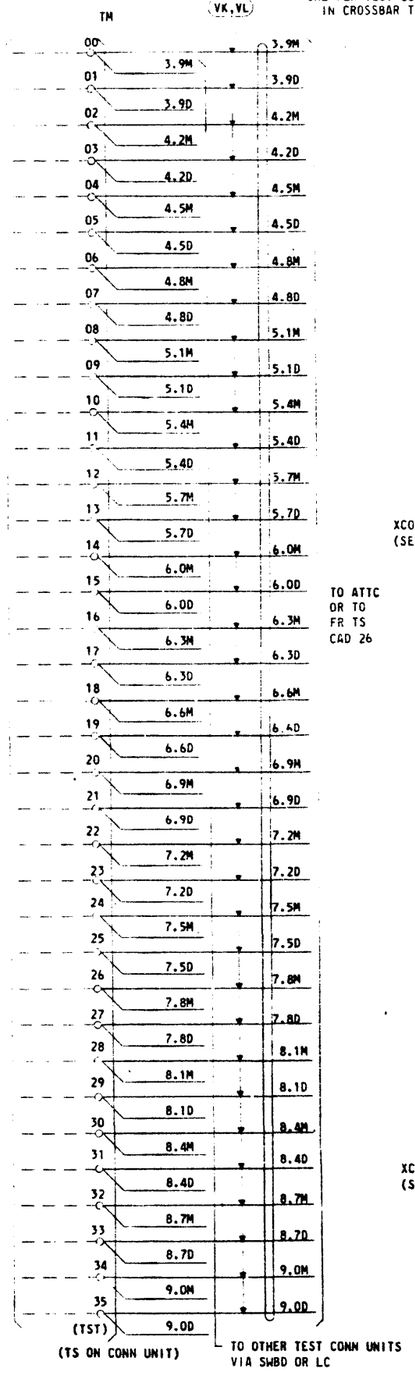
CAD 12

(FOR APP FIG. 4,5,10,11,27,32,35,38.51,52 & 64)



CAD 16

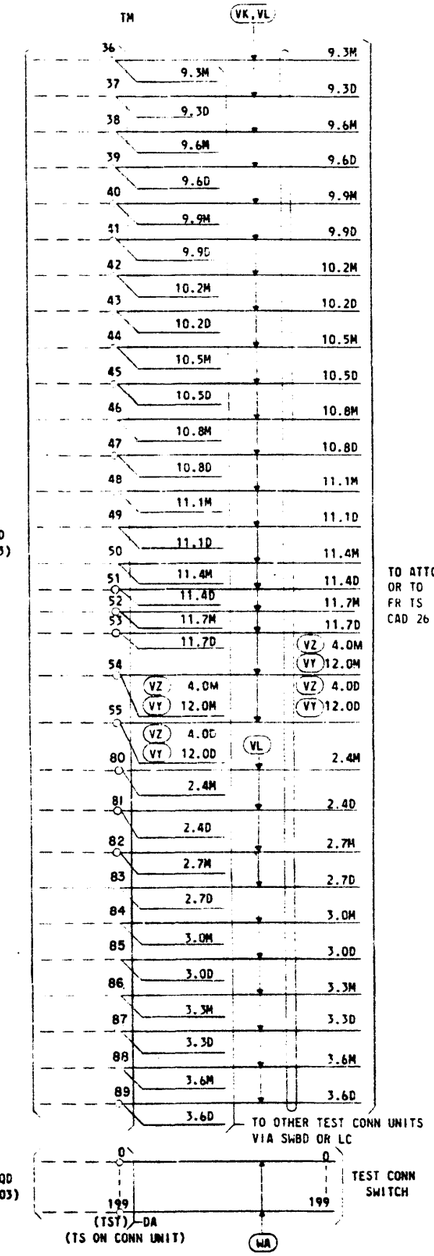
(FOR APP FIG 22)
ONE PER TEST CONN UNIT
IN CROSSBAR TANDEM



XCONN AS REQD (SEE NOTE 203)

TO ATTC OR TO FR TS CAD 26

XCONN AS REQD (SEE NOTE 203)



TO ATTC OR TO FR TS CAD 26

XCONN AS REQD (SEE NOTE 203)

TEST CONN SWITCH

DRAWING ISSUE	
41D	A.R. CLW AHH
45D	JAS
52D	DFK
53D	DFK
58D	
60D	

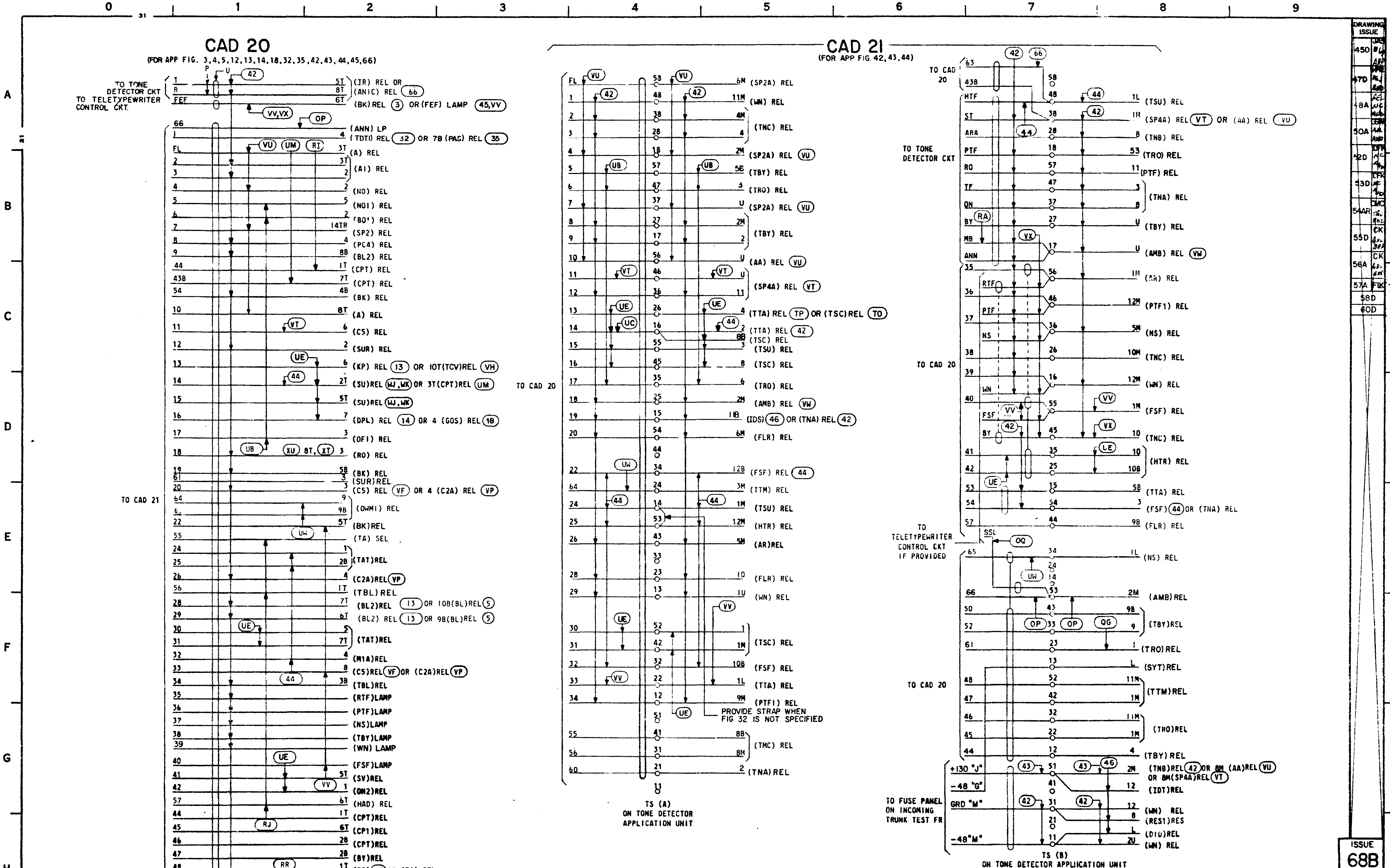
ISSUE 63B

AUTOMATIC TEST CIRCUIT (2) SD-25161 01-G5

BELL TELEPHONE LABORATORIES

SD-25161-01-G5

STABILO



CAD 20
(FOR APP FIG. 3,4,5,12,13,14,18,32,35,42,43,44,45,66)
TO TONE DETECTOR CKT
TO TELETYPEWRITER CONTROL CKT.
TO CAD 21
CAD 21
(FOR APP FIG. 42,43,44)
TO CAD 20
TO TONE DETECTOR CKT
TO TELETYPEWRITER CONTROL CKT IF PROVIDED
TO FUSE PANEL ON INCOMING TRUNK TEST FR
PROVIDE STRAP WHEN FIG 32 IS NOT SPECIFIED
TS (A) ON TONE DETECTOR APPLICATION UNIT
TS (B) ON TONE DETECTOR APPLICATION UNIT
DRAWING ISSUE

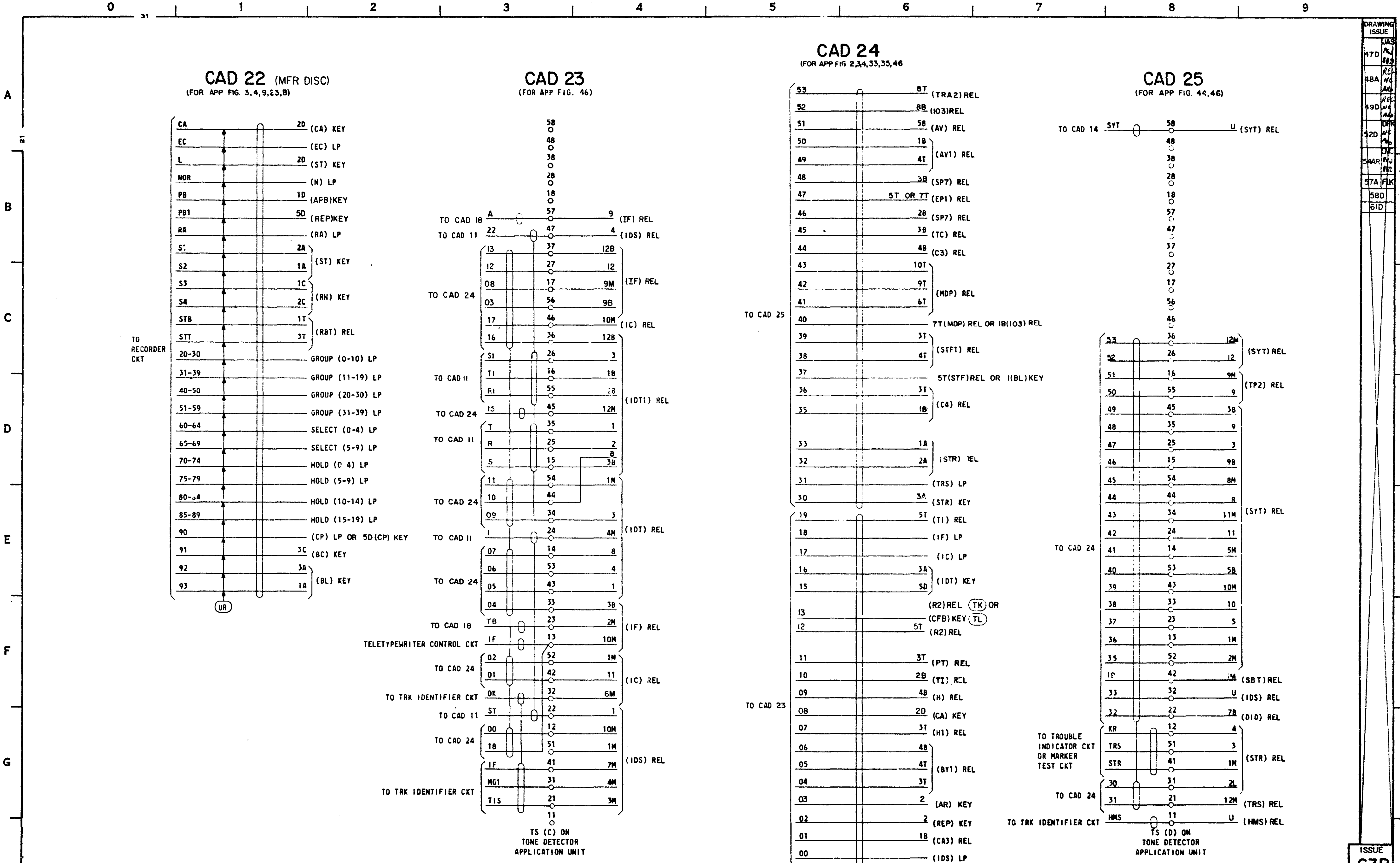
ISSUE 68B

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-G6

BELL TELEPHONE LABORATORIES INCORPORATED

6S


CAD 22 (MFR DISC)
(FOR APP FIG. 3,4,9,23,8)
TO RECORDER CKT
(CA) KEY
(EC) LP
(ST) KEY
(N) LP
(AFB)KEY
(REP)KEY
(RA) LP
(ST) KEY
(RN) KEY
(RBT) REL
GROUP (0-10) LP
GROUP (11-19) LP
GROUP (20-30) LP
GROUP (31-39) LP
SELECT (0-4) LP
SELECT (5-9) LP
HOLD (0 4) LP
HOLD (5-9) LP
HOLD (10-14) LP
HOLD (15-19) LP
(CP) LP OR 5D(CP) KEY
(BC) KEY
(BL) KEY
UR
CAD 23
(FOR APP FIG. 46)
TO CAD 18
TO CAD 11
TO CAD 24
TO CAD II
TELETYPEWRITER CONTROL CKT
TO TRK IDENTIFIER CKT
(IF) REL
(IDS) REL
(IC) REL
(IDT1) REL
(IDT) REL
TS (C) ON
TONE DETECTOR
APPLICATION UNIT
CAD 24
(FOR APP FIG 2,34,33,35,46)
TO CAD 25
TO CAD 23
(TRA2)REL
(IO3)REL
(AV) REL
(AV1) REL
(SP7) REL
5T OR 7T (EP1) REL
(SP7) REL
(TC) REL
(C3) REL
(MDP) REL
7T(MDP) REL OR 1B(IO3) REL
(STF1) REL
5T(STF)REL OR 1(BL)KEY
(C4) REL
(STR) REL
(TRS) LP
(STR) KEY
(TI) REL
(IF) LP
(IC) LP
(IDT) KEY
(R2)REL TK OR
(CFB)KEY TL
(R2)REL
(PT) REL
(TI) REL
(H) REL
(CA) KEY
(H1) REL
(BY1) REL
(AR) KEY
(REP) KEY
(CA3) REL
(IDS) LP
CAD 25
(FOR APP FIG. 44,46)
TO CAD 14
(SYT) REL
(TP2) REL
TO CAD 24
(SBT)REL
(IDS) REL
(DID) REL
TO TROUBLE INDICATOR CKT OR MARKER TEST CKT
(STR) REL
(TRS) REL
TO TRK IDENTIFIER CKT
(HMS) REL
TS (D) ON
TONE DETECTOR
APPLICATION UNIT
DRAWING ISSUE
47D
48A
49D
52D
54AR
57A
58D
61D

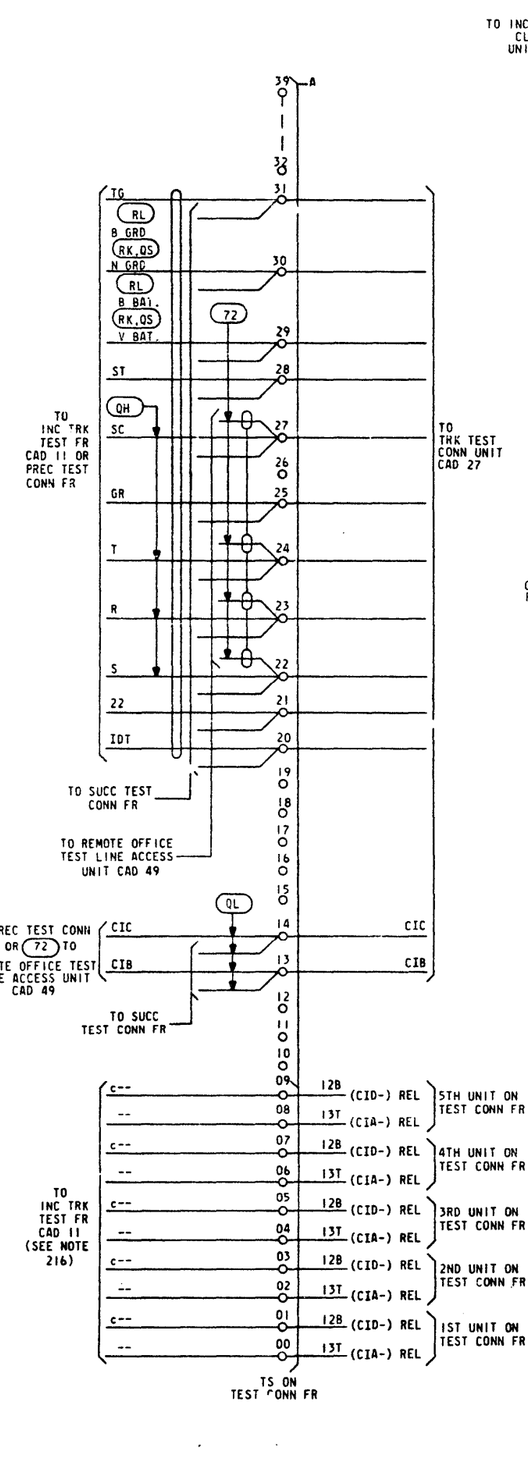
ISSUE 63B

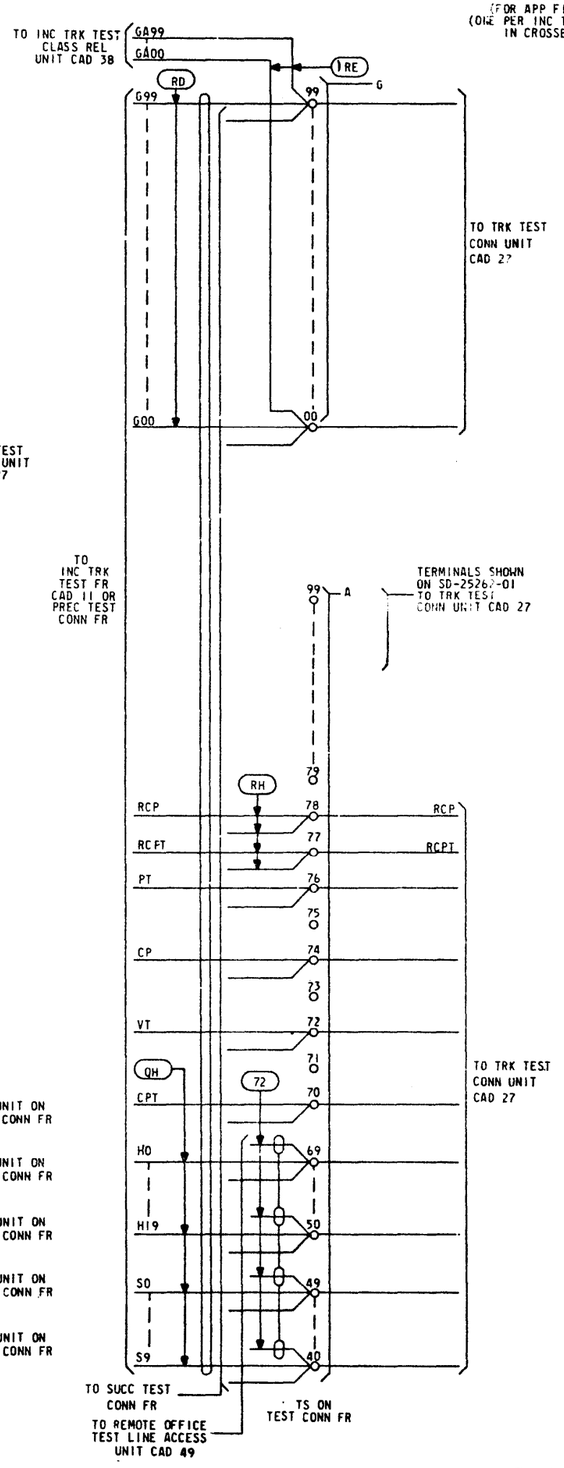
AUTOMATIC TEST CIRCUIT ② SD-25161-01-G7

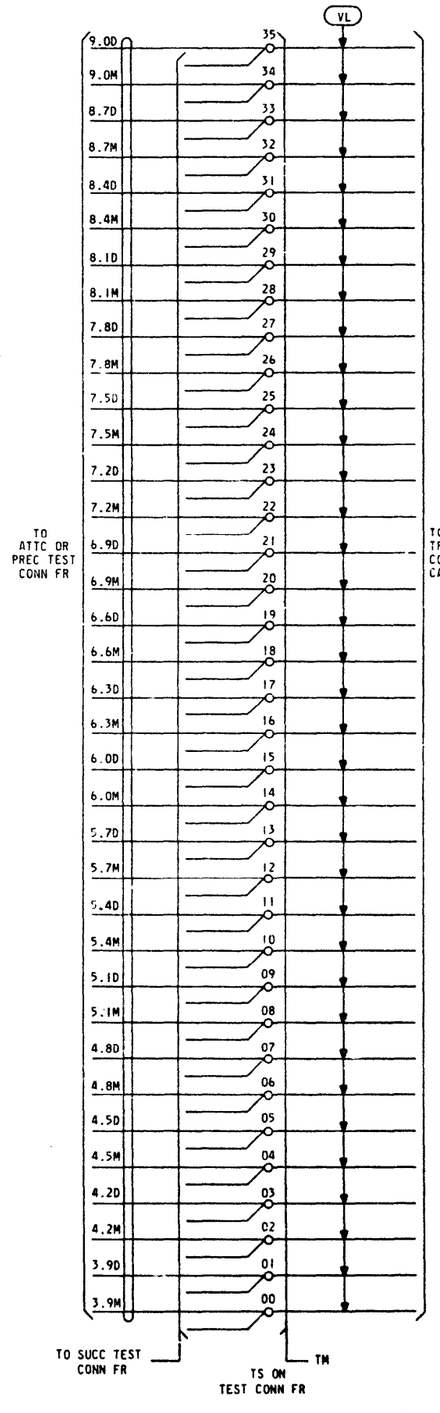
SD-25161-01-G7

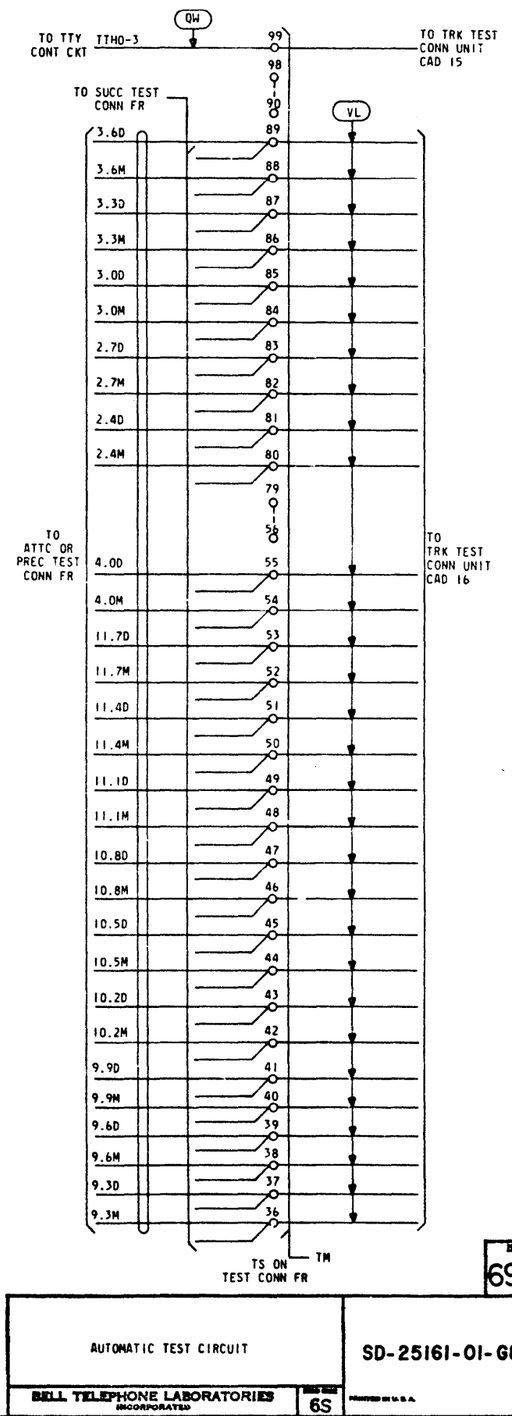
CAD 26

(FOR APP FIG.2 AND 22)
(ONE PER INC TRK TEST CONN FR IN CROSSBAR TANDEM)







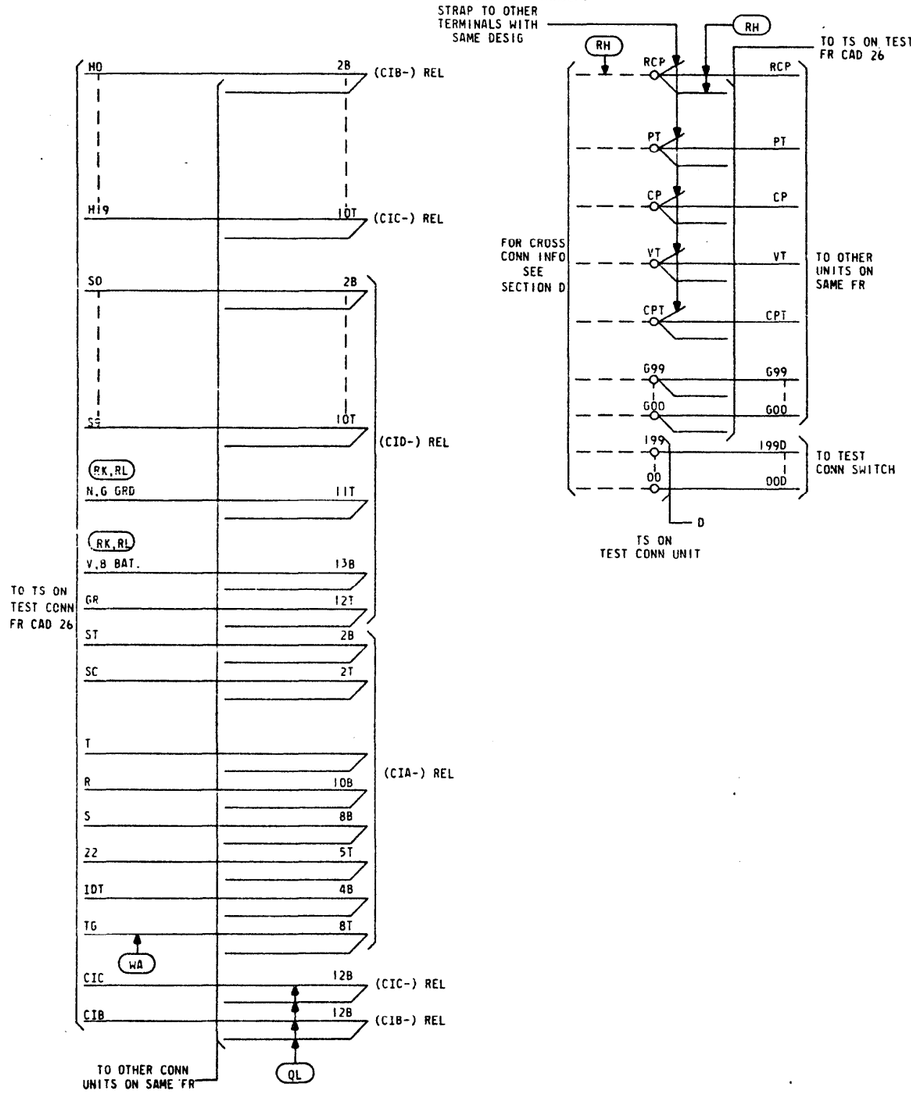


ISSUE 69AC

AUTOMATIC TEST CIRCUIT	SD-25161-01-GB
BELL TELEPHONE LABORATORIES INCORPORATED	ISSUE 6S

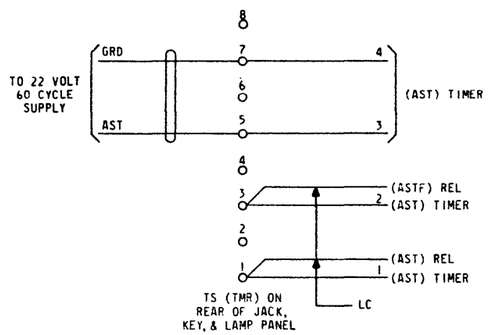
CAD 27

(FOR APP FIG.2 AND 22)
(ONE PER TEST CONN UNIT IN CROSSBAR TANDEM)



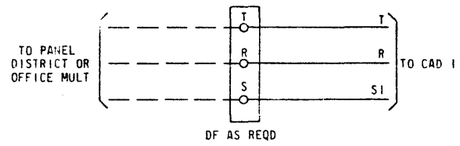
CAD 28

(FOR APP FIG. 56)



CAD 29

(FOR APP FIG.1)

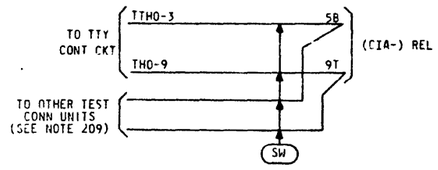


	AUTOMATIC TEST CIRCUIT	SD-25161-01-69
BELL TELEPHONE LABORATORIES INCORPORATED	6S	

69AC

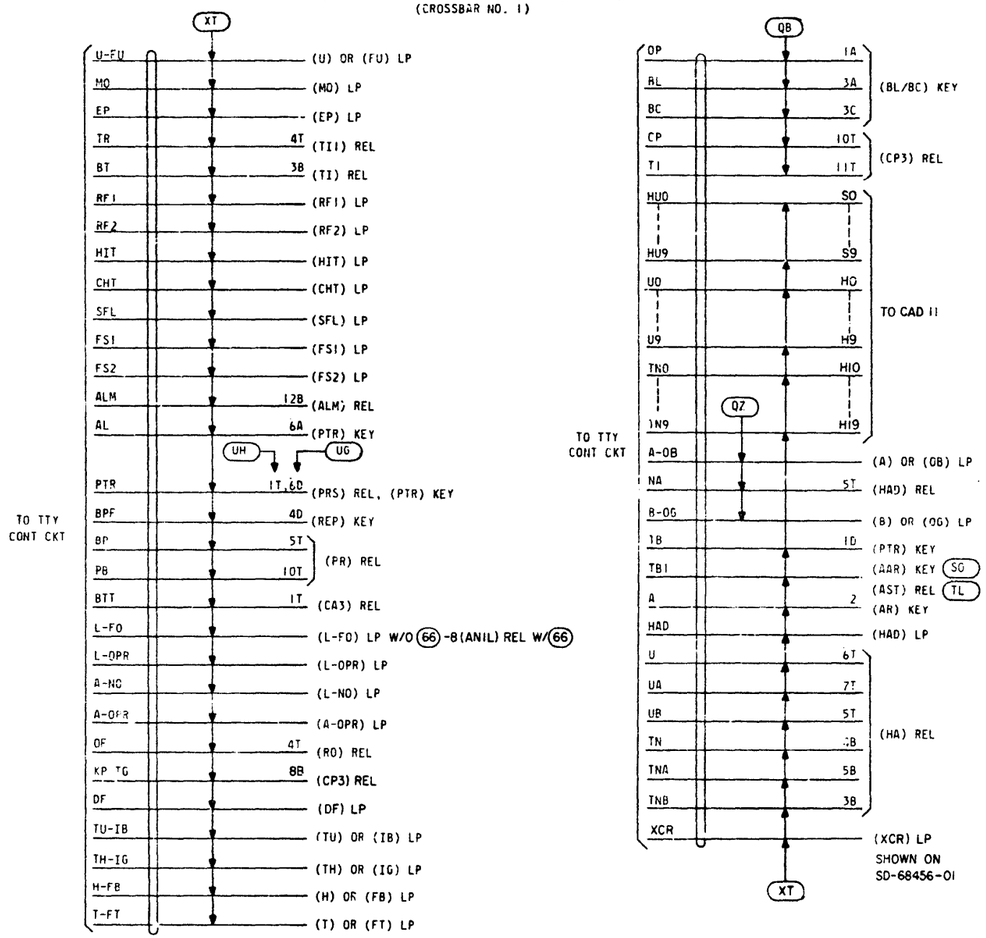
CAD 36

(FOR APP FIG. 37)
(ONE PER ITT CONN UNIT
NO. 1 CROSS BAR)



CAD 37

(FOR APP FIG. 3,5,6,9,12,25,32-34,38 & 41)
(CROSSBAR NO. 1)



ISSUE
66B

AUTOMATIC TEST CIRCUIT
2

SD-25161-01-G12

BELL TELEPHONE LABORATORIES
INCORPORATED

SIZE
6S

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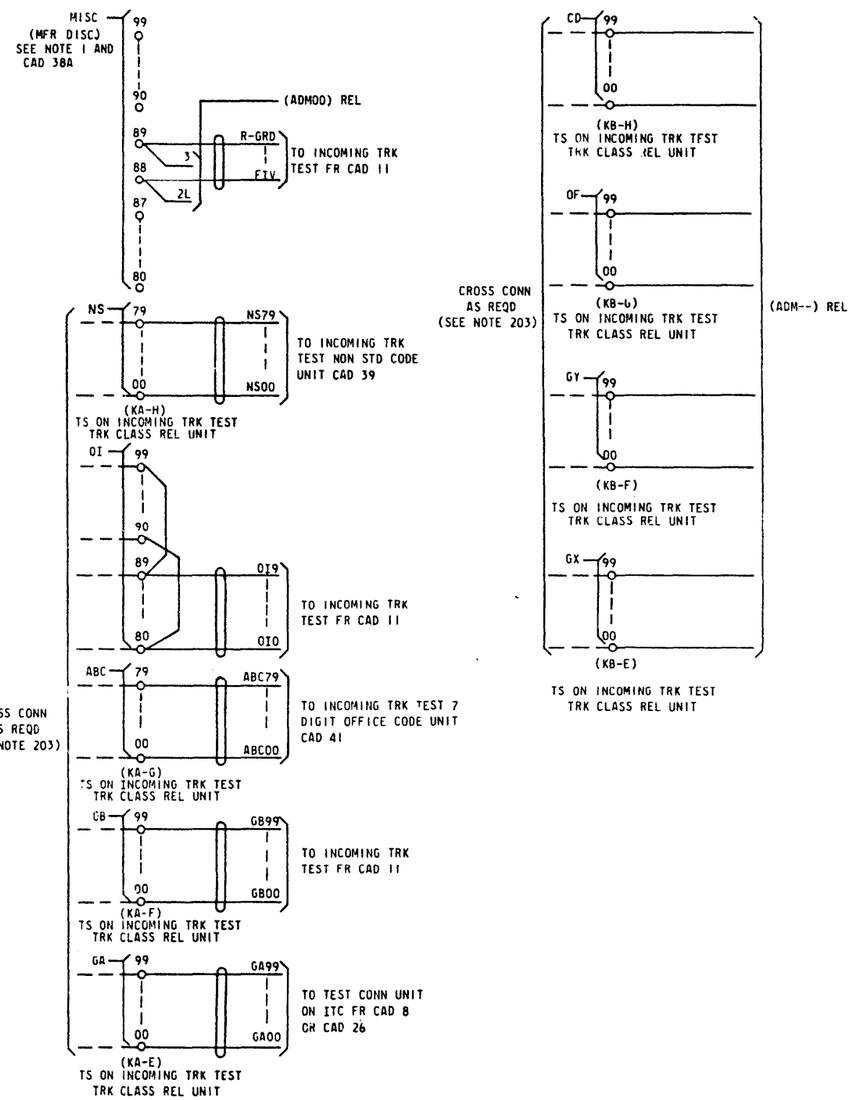
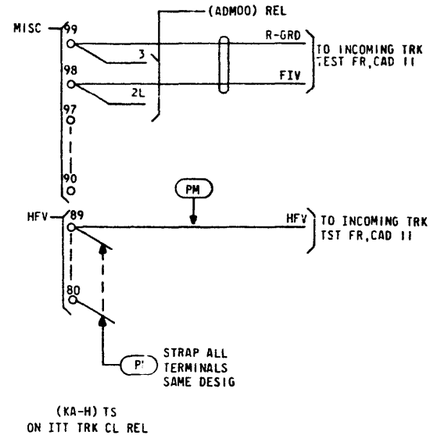
SD-25161-01-G12

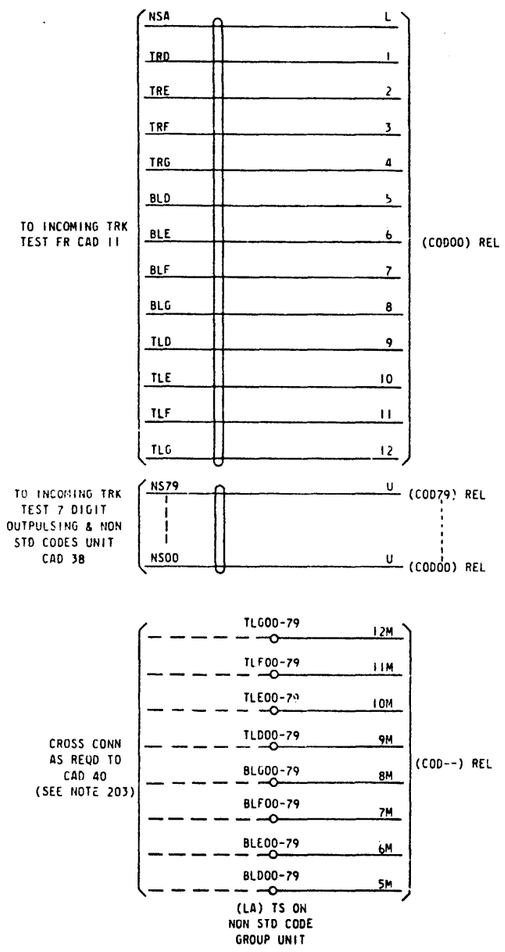
CAD 38
(FOR APP FIG. 68 & 65 OR 69)



CAD 38A
(SEE NOTE 1)



CAD 39
(FOR APP FIG. 62)



NOTES:

1. MISC TERMINAL 80-99 OF CAD 38 ARE REPLACED AS SHOWN IN CAD 38A.

ISSUE 68B

AUTOMATIC TEST CIRCUIT

(2)

SD-25161-01-613

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-613

CAD 40

TO INCOMING TRK TEST FR CAD 11

R GRD

SKP

SKP

CROSS CONN AS REQD TO CAD 39 (SEE NOTE 203)

DC9

9

9

MULT TO OTHER DC TS (SEE NOTE 307)

CROSS CONN AS REQD TO CADS 39 & 41 (SEE NOTE 203)

DC8

8

8

DC7

DC6

6

6

TO INCOMING TRK TEST FR CAD 14

DC5

DC4

4

4

DC3

DC2

2

2

DC1

DC0

0

0

TS (DC) (RE)

ISSUE 63B

AUTOMATIC TEST CIRCUIT (2)

SD-25161-01-G14

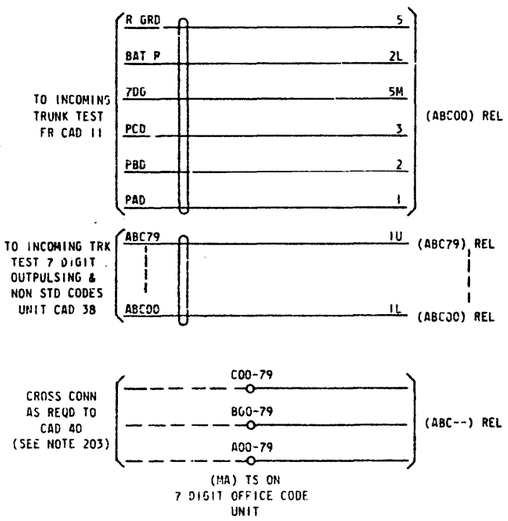
BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-25161-01-G14

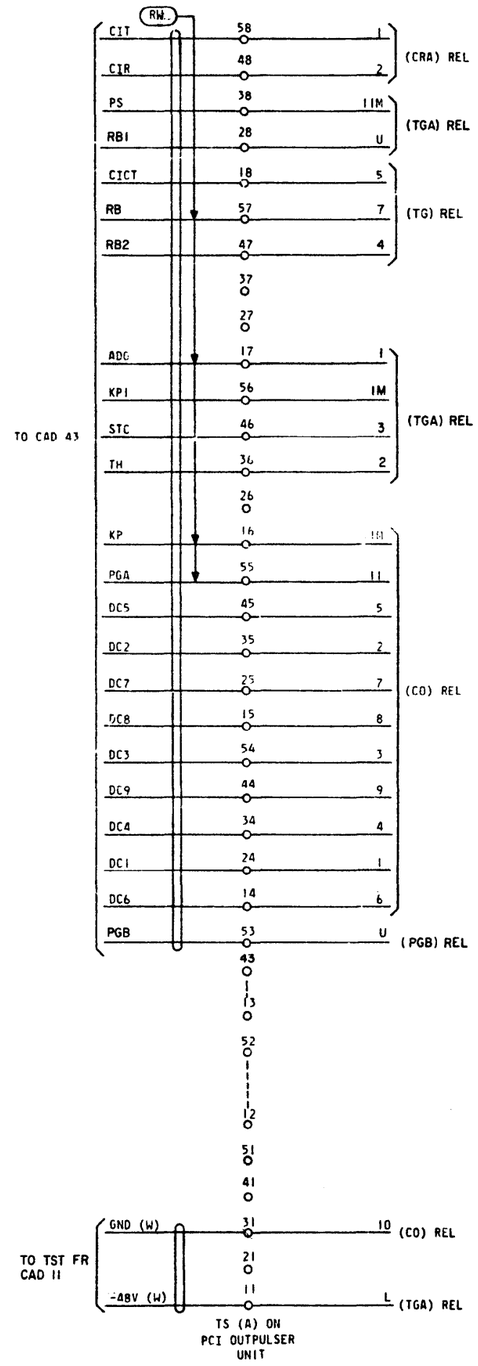
CAD 41

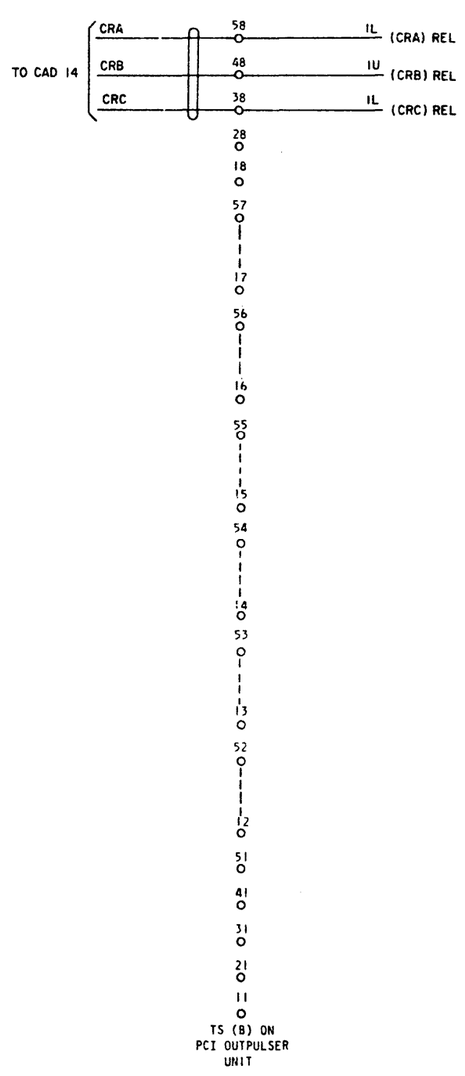
(FOR APP FIG. 65)



CAD 42

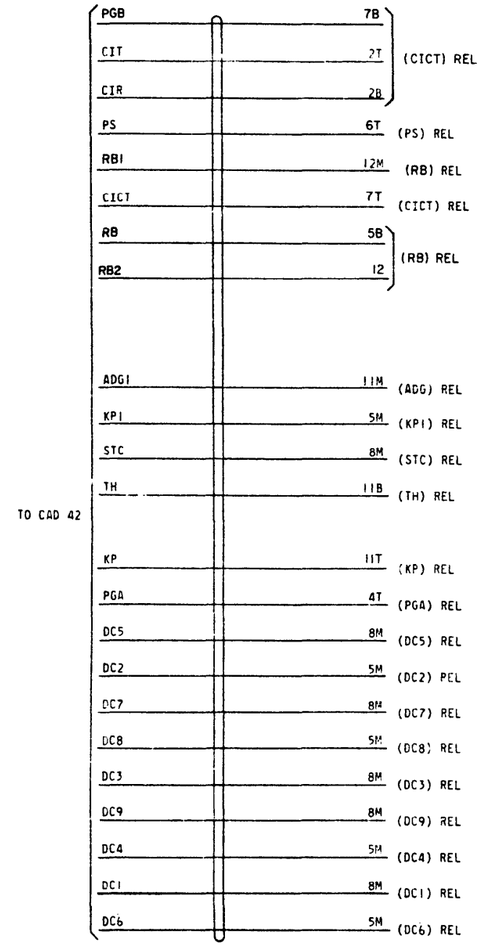
(FOR APP FIG. 63)





CAD 43

(FOR APP FIG. 13,15,17 & 70)



SD-25161-01-G15

ISSUE 63B

AUTOMATIC TEST CIRCUIT

(2)

SD-25161-01-G15

BELL TELEPHONE LABORATORIES INCORPORATED

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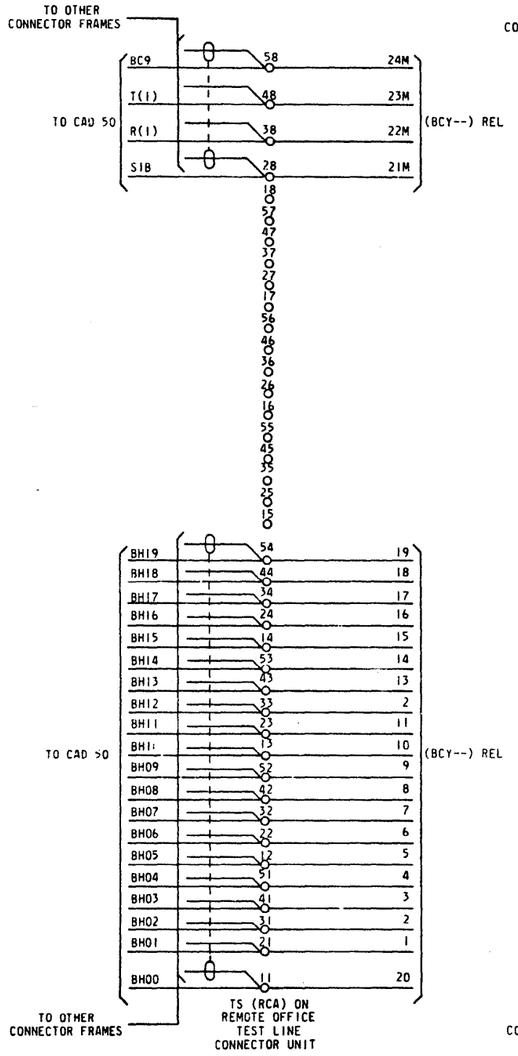
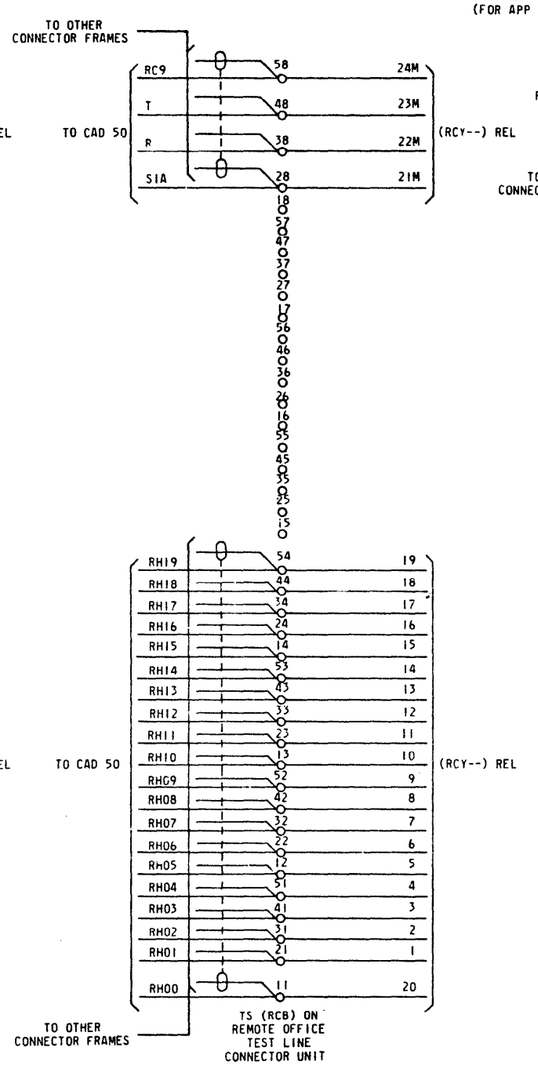
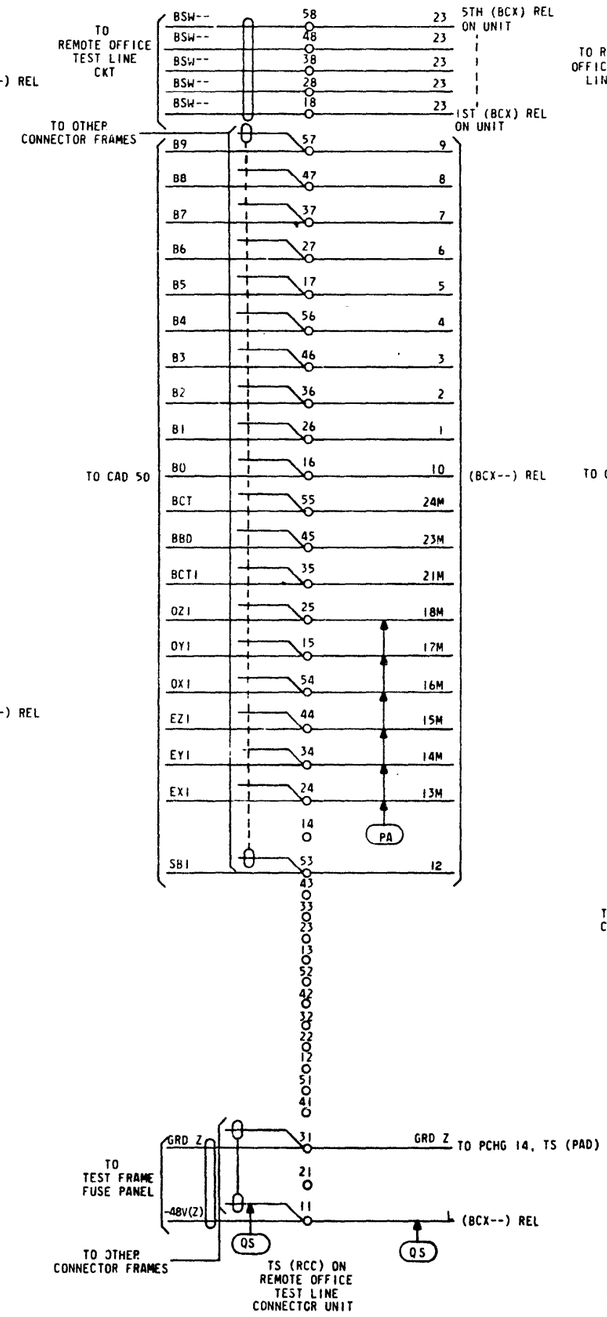
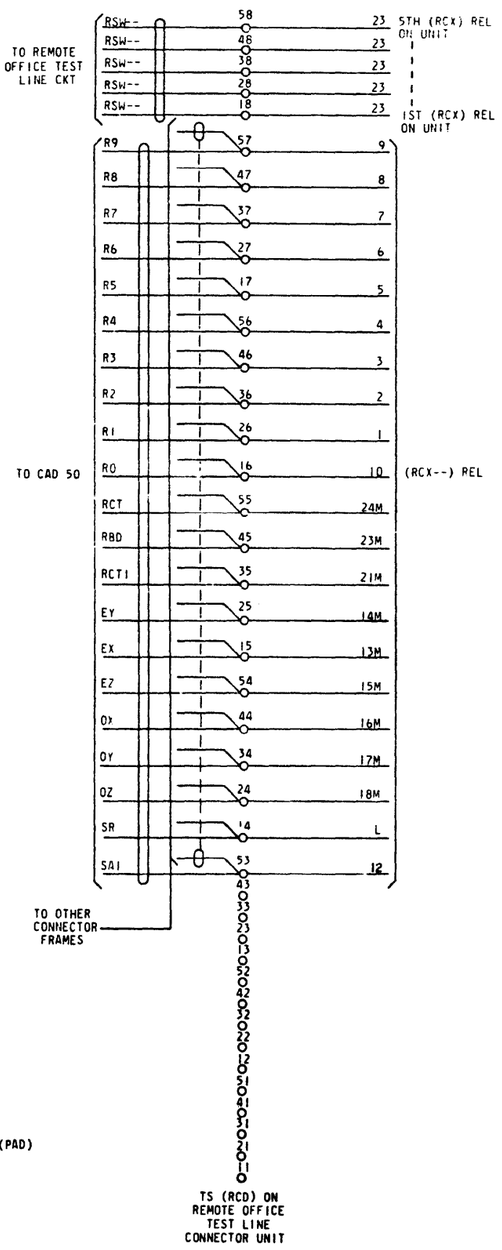
CAD 44

(FOR APP FIG.74)





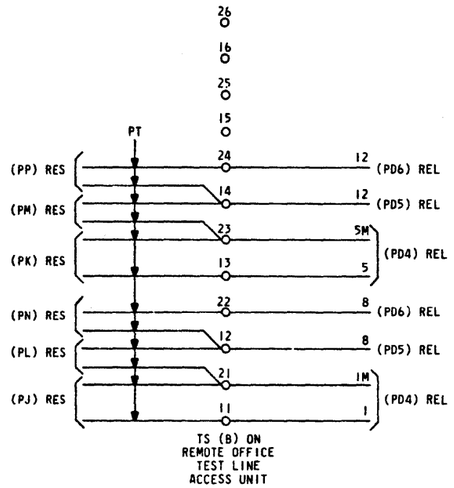


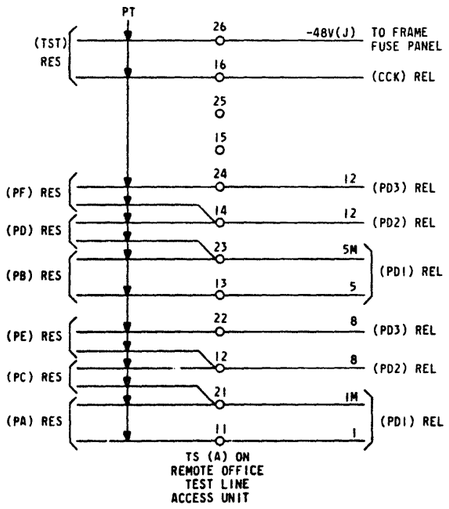


ISSUE 69AC

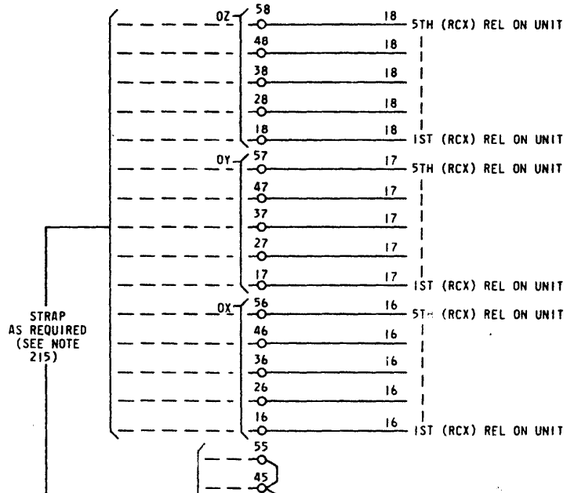
AUTOMATIC TEST CIRCUIT	SD-25161-01-GI6
BELL TELEPHONE LABORATORIES INCORPORATED	6S

CAD 45
(FOR APP FIG.73)

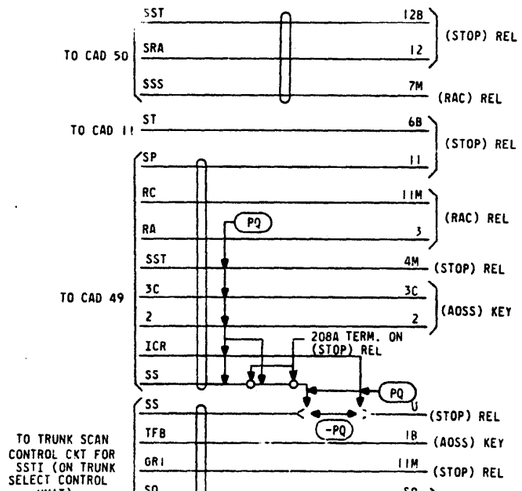




CAD 46
(FOR APP FIG.74)



CAD 47
(FOR APP FIG.75)



ISSUE 68B

AUTOMATIC TEST CIRCUIT	SD-25161-01-617
BELL TELEPHONE LABORATORIES INCORPORATED	DRAWING SIZE 6S

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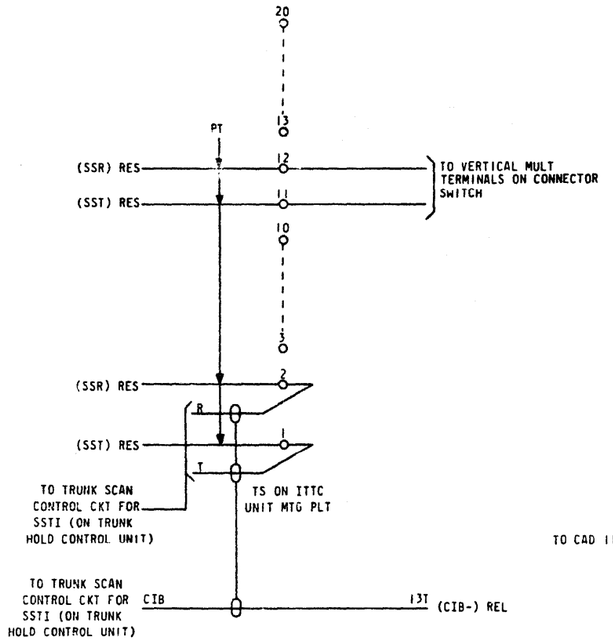
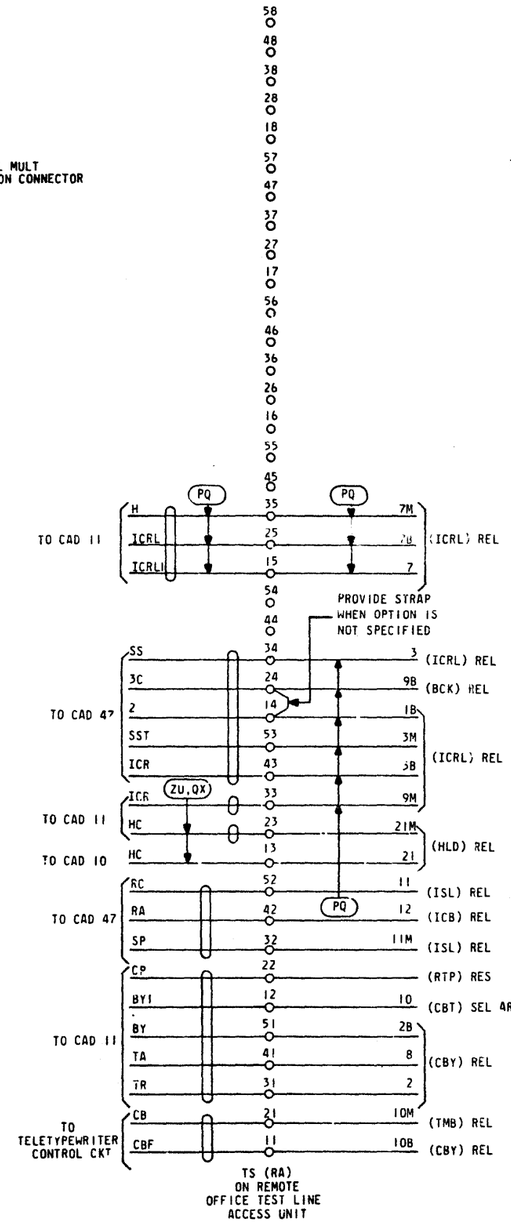
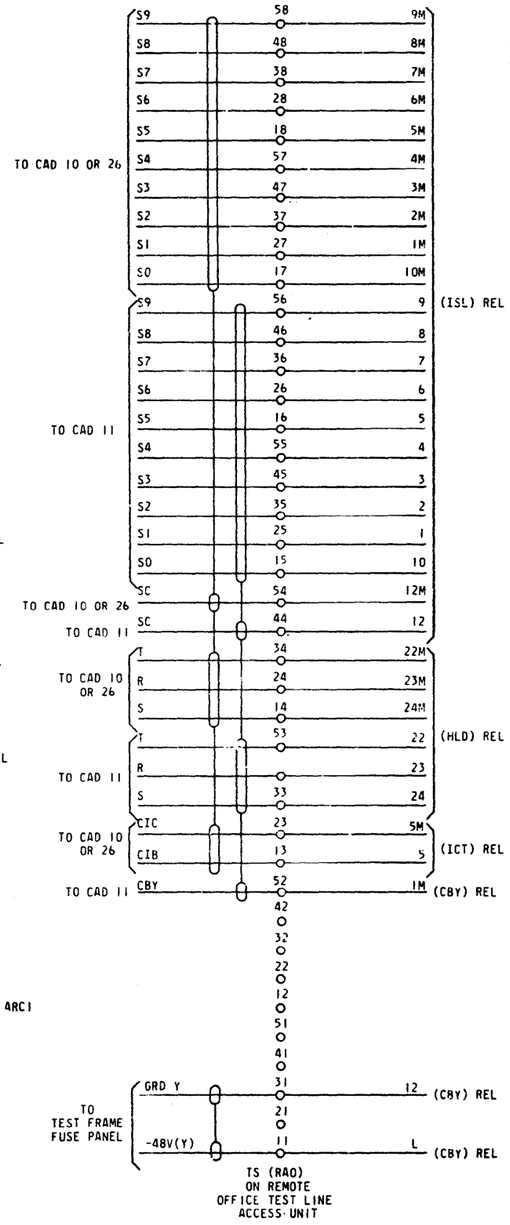
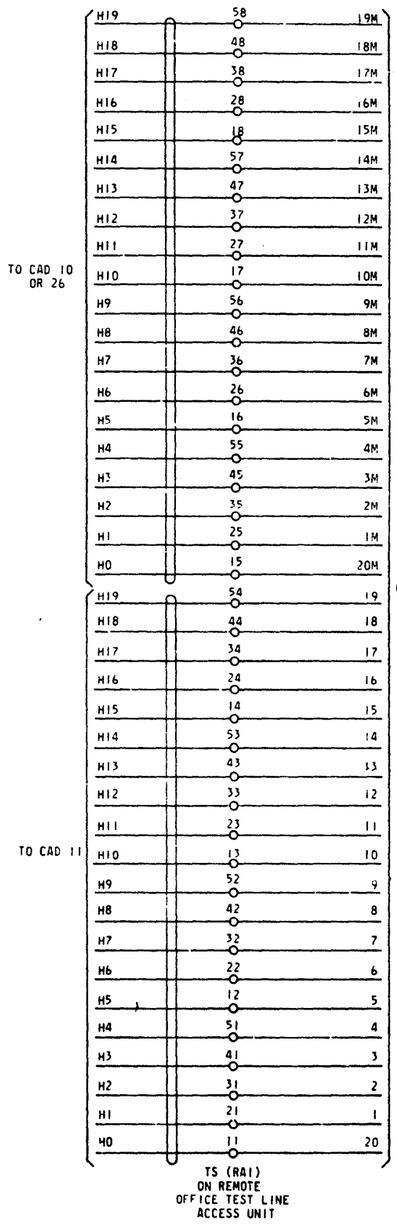
CAD 48
(FOR APP FIG.76)



CAD 49
(FOR APP FIG.72)







ISSUE 69AC

AUTOMATIC TEST CIRCUIT

SD-25161-01-G18

BELL TELEPHONE LABORATORIES INCORPORATED

6S

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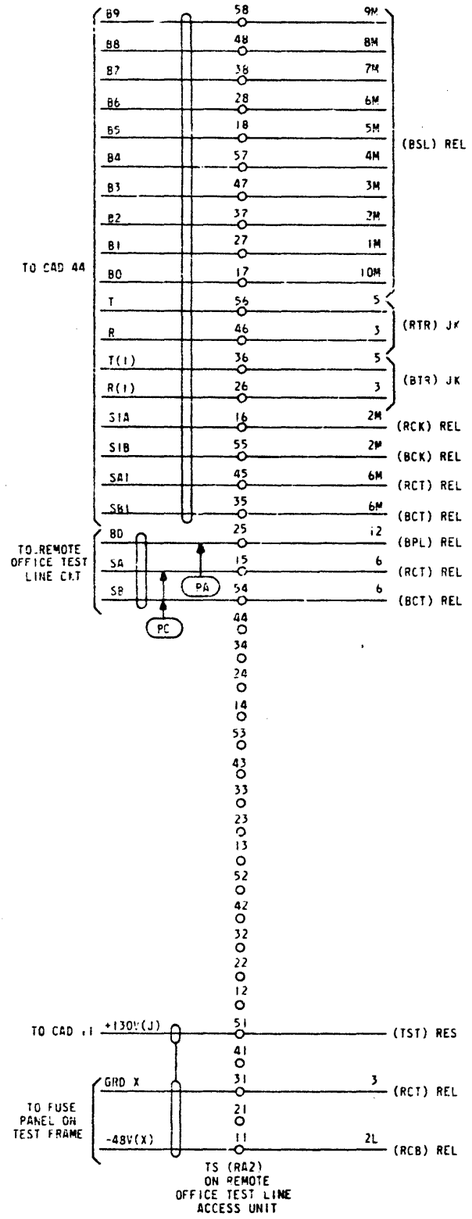
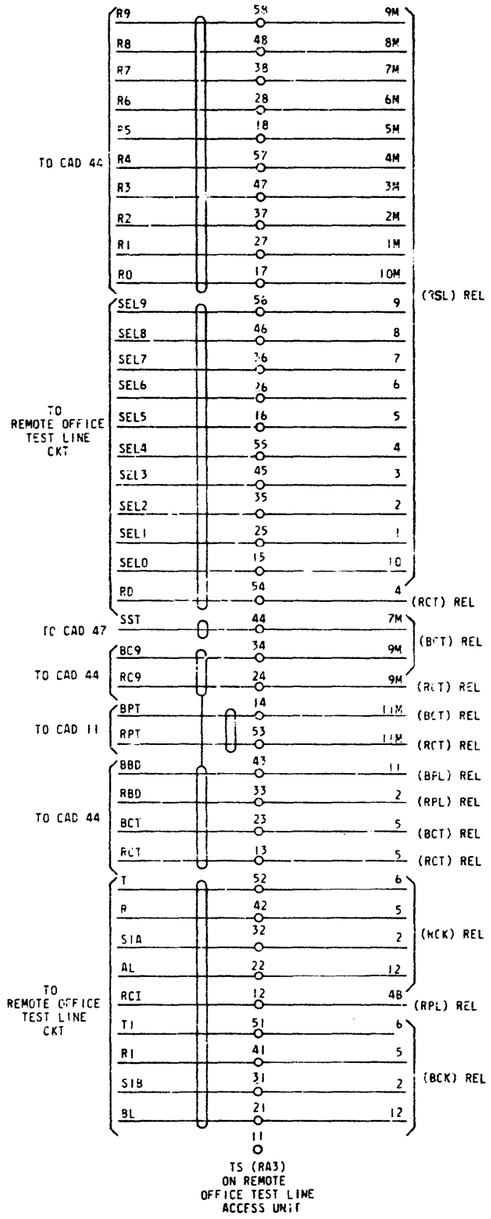
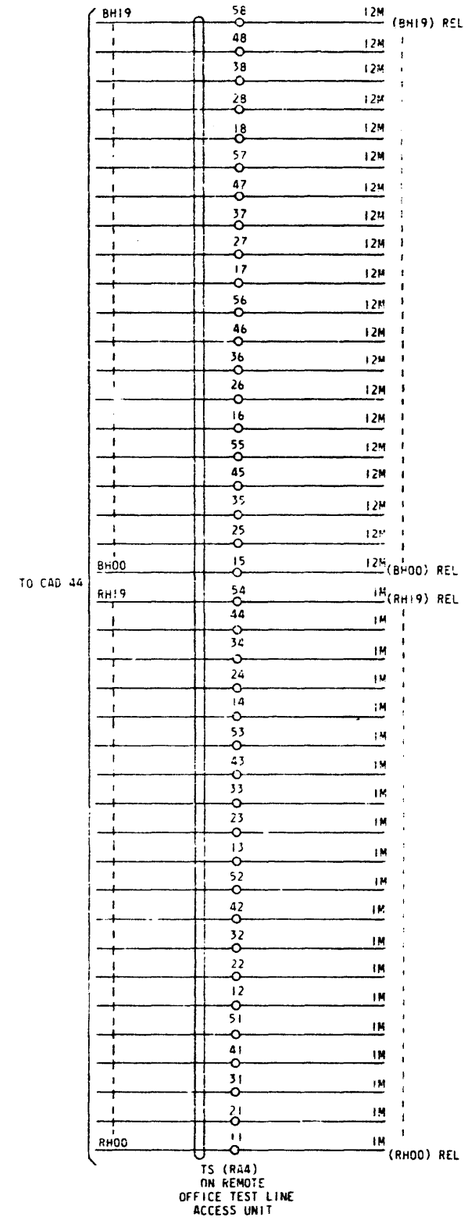
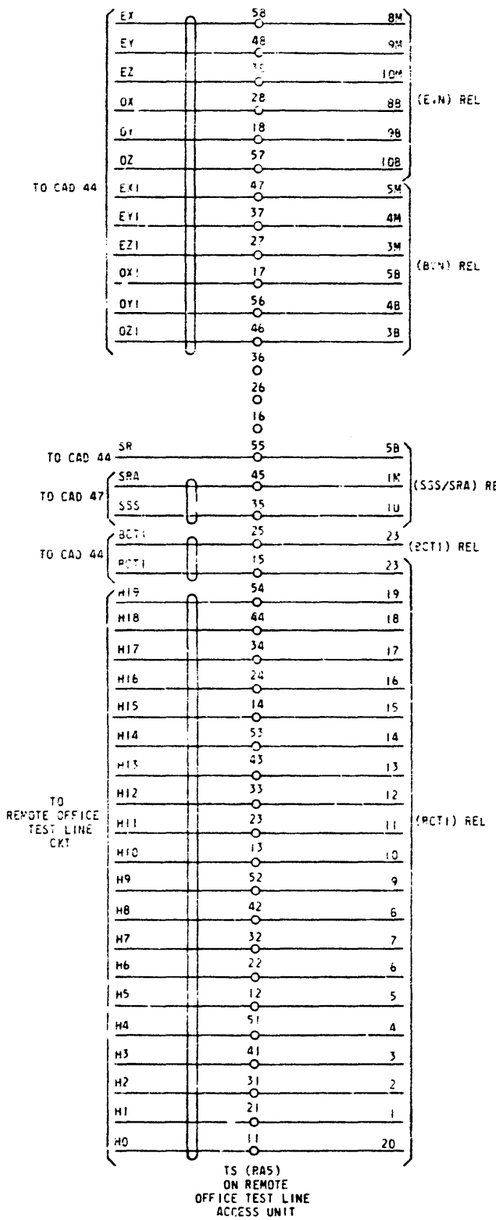
CAD 50

(FOR APP FIG.73)









ISSUE 67B

AUTOMATIC TEST CIRCUIT	SD-25161-01-G19
BELL TELEPHONE LABORATORIES INCORPORATED	6S